# NetAXS-123

# Access Control Unit
# Installation Guide

**Ordering Information**

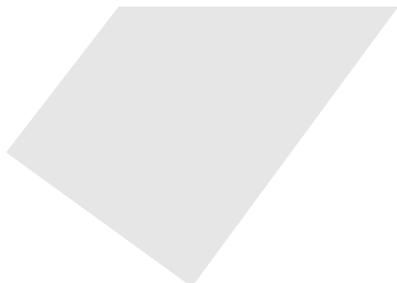Please contact your local Honeywell representative or visit us on the web at www.honeywellaccess.com for information about ordering.

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# Installing the NetAXS-123 Panels

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# 1.0 Introduction

This document describes how to install the NetAXS-123 Standard Enclosure access control unit and the NetAXS-123 Compact Enclosure access control unit.

## 1.1 Access Control Overview

An access control system protects and preserves an enterprise's resources by providing authentication, authorization, and administration services. Authentication is a process that verifies a user's identity. If the user is verified, the system then either grants or denies access to specific areas and resources. Administration includes the creation and modification of user accounts and access privileges.

An access control system consists of hardware and software, usually configured in a network environment over a standard network protocol. Access control units, readers, door strikes, and video and other devices, for example, are configured to control and monitor the access to a company site.

## 1.2 NetAXS-123 Overview

A NetAXS-123 access control is a full-featured one-door web-based access control system that supports up to three doors when supplemented with an add-on input/output board. The NetAXS-123 panel includes a built-in web server, built-in Ethernet and USB support, and Power over Ethernet (PoE) capability. You can manage the access control system using either a web browser or WIN-PAK. For supported configurations, see "System Configuration" on page 48 to view illustrations of the supported NetAXS-123 system configurations.

# 2.0 Panel Components and Descriptions

**Note:** This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The NetAXS-123 panel consists of a web-browser-enabled controller, a one- or two-door add-on board that supports additional inputs and outputs, a power-over-Ethernet (PoE) power supply (NetAXS-123 Compact only), and a battery (NetAXS-123 Standard only).

The following figures show the NetAXS-123 panel wiring and components.

*Figure 1: NetAXS-123 Compact Enclosure Wiring and Components*

*Figure 2:    NetAXS-123 Standard Enclosure Panel Wiring and Components*



**Note:**  Maintain at least a .25-inch distance between the non-power limited wiring (115 VAC/60 Hz input wiring, power line filter wiring, and battery backup/charger wiring) and all other wiring, which is power-limited Class 2 wiring.

*Figure 3:    NetAXS-123 Add-On Board Wiring and Components*
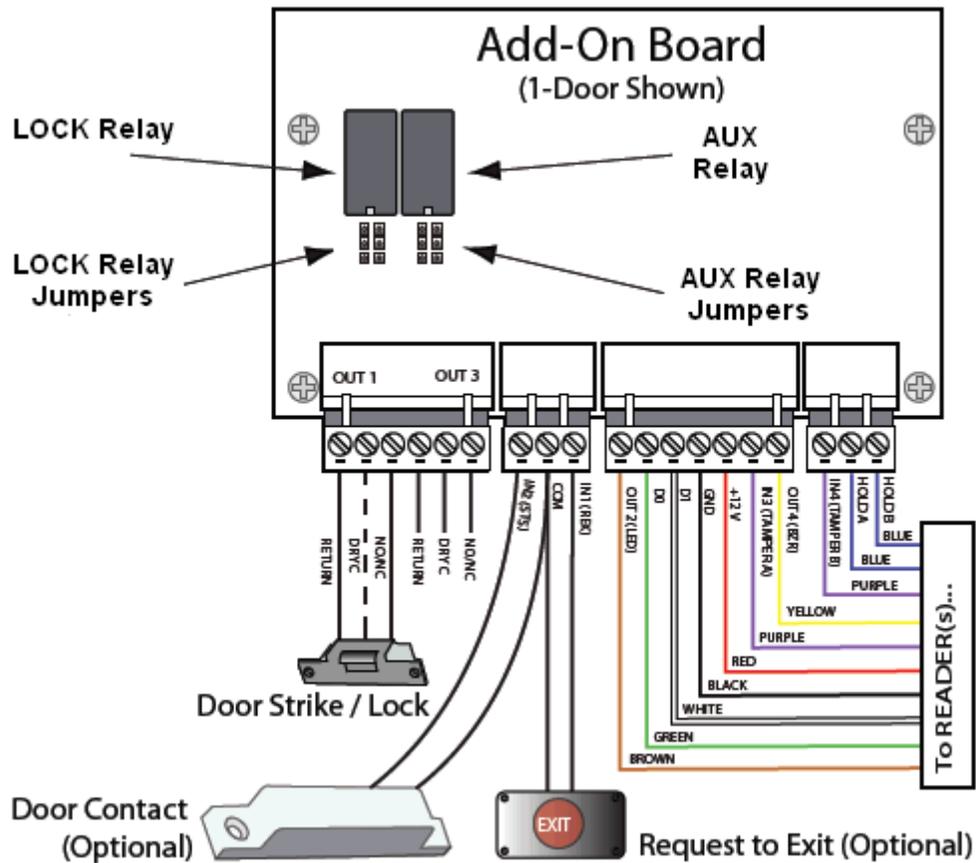


## 2.1  Supervised Input Wiring

The supervised inputs are located on the following terminal blocks:

*Table 1:  Supervised Input Terminal Blocks*

| Board Configuration | Terminal Block |
|---|---|
| 1-Door (Controller Board) | C-TB2<br>C-TB10 |
| 1-Door (Add-On Board) | IO-TB2 |
| 2-Door (Add-On Board) | IO-TB2 (as 1-door Add-On Board)<br>IO-TB6 |

Tampers can also be supervised. They are located on the following terminal blocks:

***Table 2:*** *Supervised Tamper Terminal Blocks*

| Board Configuration | Terminal Block |
|---|---|
| 1-Door (Controller Board) | C-TB3/TMPR A<br>C-TB4/TMPR B |
| 1-Door (Add-On Board) | IO-TB3/TMPR A<br>IO-TB4/TMPR B |
| 2-Door (Add-On Board) | IO-TB3/TMPR A<br>IO-TB4/TMPR B<br>IO-TB7/TMPR A<br>IO-TB8/TMPR B |

Door Status (STS) and Request to Exit (REX) for all three doors may be configured for Normally Open or Normally Closed contacts as supervised or non-supervised. Inputs 5 (generic) and 6 (power) are on C-TB10. All seven inputs on the Controller Board and four inputs on the Add-On Board have default functions, but they can be configured for general purpose inputs.

The following figure shows the typical wiring for a supervised input.

*Figure 4: Typical Supervised Input Wiring Diagram*
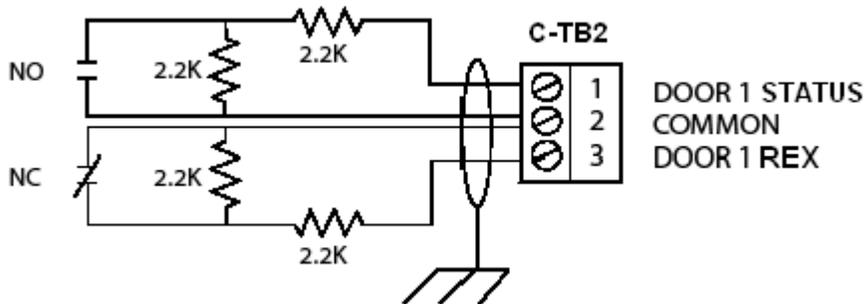


The figure above shows standard 2,200 ohm resistors. The NetAXS-123 panel accepts 1,000, 2,200, 4,700, or 10,000 ohm values. Note that both resistors must have the same value.

In addition, the Reader tampers can be supervised and capable of being used as additional inputs if the default functionality is not needed.

The wire used for the inputs should be shielded and cannot exceed 30 ohms over the entire length of the cable. Remember that the distance from the panel to the door must be doubled to determine the total resistance.

**Caution:** The cable shield should be grounded only at the panel earth ground. Grounding at both ends can cause ground loops which can be disruptive.

**Caution:** The system has not been verified for compliance with UL1076 Burglar Alarm units and systems.

## 2.2  NetAXS-123 Access Control Unit

The NetAXS-123 panel is a one-door access control unit that you can supplement with an add-on board that supports second and third doors. The following table shows the NetAXS-123 input/output options:

*Table 3:*  *NetAXS-123 Input/Output Options*

| Board | Readers | Inputs/Outputs |
|---|---|---|
| Controller | 1 door/2 readers | 1 lock output<br>1 aux output<br>1 status input<br>1 Request to Exit<br>2 reader tamper/AUX inputs |
| Add-On (1 Door) | 1 door/2 readers | 1 lock output<br>1 aux output<br>1 status input<br>1 Request to Exit<br>2 reader tamper/AUX inputs |
| Add-On (2 Door) | 2 doors/4 readers | 2 lock outputs<br>2 aux outputs<br>2 status inputs<br>2 Request to Exits<br>4 readers tamper/AUX inputs |

You can use the NetAXS-123 panel as a standalone panel with independent card and transaction storage or, with a host software upgrade, as a fully monitored online access control device.

Panel inputs are capable of four state supervision: Normal, Alarm, Short and Cut. One input is used for request to exit on each door and one input is used for door status on each door. Supervised inputs for External Power Fail and Reader Tampers are supplied as well, and they can be used as additional inputs when not required for their default purpose.

### 2.2.1  NetAXS-123 Add-On Board

The NetAXS-123 Add-On Board enables you to expand from one door to either two or three doors. The board easily connects to the NetAXS-123 controller board (see the *NetAXS-123 Add-On Board Installation Guide* (800-05787).

## 2.2.2  Supported Readers

Supported readers include the following:

*Table 4:* *Readers Supported by NetAXS-123*

| Series | Reader Model | Honeywell Part Number |
|---|---|---|
| OmniProx | OP-10 | OP10GENE<br>OP10HONE |
|  | OP-30 | OP30GENE<br>OP30HONE |
|  | OP-40 | OP40GENE<br>OP40HONE |
|  | OP-45 | OP45GENE<br>OP45HONE |
| HID | ProxPoint Plus | 6005B |
|  | MiniProx | HU/5365EGP00 |
|  | Thinline II | HU/5395CB100<br>HU/5395CG100<br>HU/5395CK100 |
|  | ProxPro | HU/5355AGN00 |
|  | ProxPro II | HU/5455BGN00 |
|  | ProxPro K | HU/5355AGK00 |
|  | EntryProx | 4045CGNU0 |
|  | MaxiProx | HU/5375AGN00 |
| Omni-Class | OM40 | OM40BHONB<br>OM40GHONB |
|  | OM41 | OM41BHONB<br>OM41GHONB |
|  | OM55 | OM55BHONB<br>OM55GHONB |
|  | OM70 | OM70BHONB<br>OM70GHONB |

| Series | Reader Model | Honeywell Part Number |
|--------|-------------|----------------------|
| OmniAssure | OT30 | OT30HONA |
| | OT31 | OT31HONA |
| | OT35 | OT35HONA |
| | OT36 | OT36HONA |
| | OT70 | OT70HONA |
| | OT75 | OT75HONA |
| NexWatch | DR 4200K | 92042000000 |
| | DR 4220 | 92042200000 |

**Note:** For NetAXS-123 reader specifications, see Hardware Specifications, page 60.

### 2.2.3 Real-Time Clock Protection

The panel RTC is backed up using a super capacitor. The super capacitor will power the real-time clock for 24 hours in the absence of primary power or backup battery.

## 2.3 Power Supply

The NetAXS-123 Compact Enclosure is powered by Power Over Ethernet (PoE) injector. This PoE injector can supply a total system current of 800mA to 900mA @ 12VDC. However the NetAXS-123 controller board consumes 400mA of current, and it therefore leaves 450mA of total current for the 12VDC external power. See Hardware Specifications, page 60, for further details on current limits using PoE.

The Standard Enclosure uses a 12VDC 4A power supply with an international input of 100VAC to 240VAC. The supply also charges and monitors the condition of the battery. Wire the unswitched electrical power to the supply per the National Electrical Code as well as any local electrical codes, including the safety ground wire.

An input power indicator is supplied, and it is illuminated when input voltage is present. If the indicator is off, the input voltage is off, or too low to operate the system.

**Caution:** Disconnect the battery and AC power before servicing the fuse. For continued protection against the risk of electric shock and fire hazard, replace the input fuse with a GMA type fuse with the rating of 1A, 250V. The fuse is located in the lower-left corner in the cabinet, as shown below.

## 2.4 Battery

For the NetAXS-123 Standard Enclosure panel, one CASIL CA1270, 12 VDC, 7A-hour sealed lead-acid battery (Honeywell order number 3-000066). The battery provides standby backup power, depending upon system configuration and activity. When AC is lost, the power supply automatically switches to the backup battery for continuous 12VDC power. Replace the battery every 2 to 2.5 years, or more often if the system has a high rate of backup use.

## 2.5 Suppressors

Two suppressors (HAS number S-4) are required for each door lock. One suppressor is installed on the panel control board, and the second must be installed at the door lock.

# 3.0  Installation

## 3.1  Installing the Compact Enclosure Panel

Perform the following steps to install the NetAXS-123 Compact panel:

**Warning:** Use a static strap whenever touching the panel to ensure protection from Electrostatic Discharge (ESD).

### 3.1.1  Installing on a Wall

1. Review the panel layout, cable runs, and power needs.

2. Mount the enclosure's back at the proper location on the wall:

   a. Drill the screw holes in the wall, using the panel's back as a template, and then pull the power and all I/O wires to the enclosure and through the knockout holes, and properly mark each wire for its use.
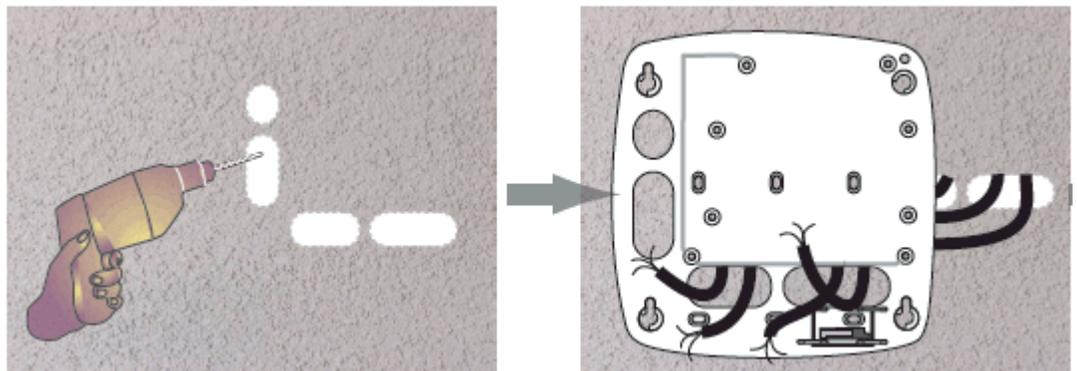


   b. Screw the back of the panel to the wall, using either drywall screws or threaded wall anchors.
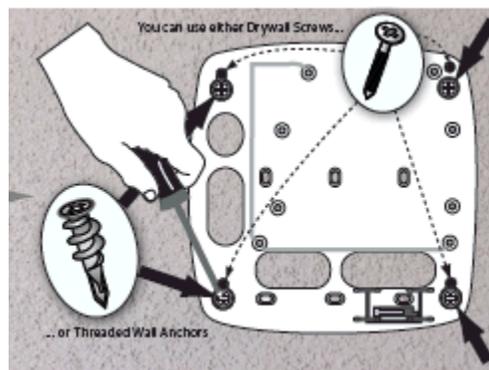
3. Mount the board onto the back of the panel.
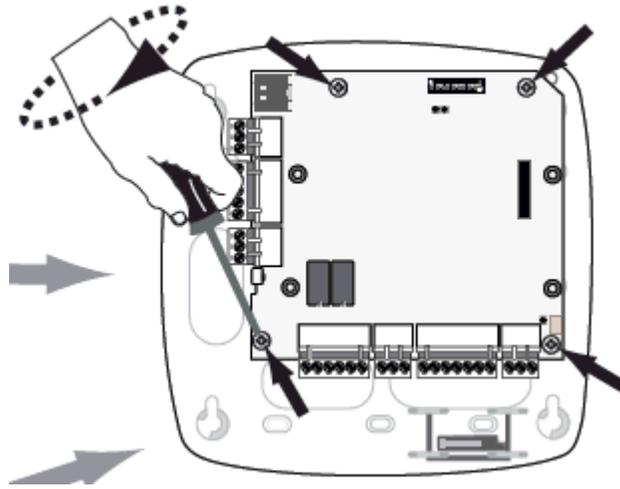


4. Choose the tamper type (standard or off-the-wall tamper) and wire the tamper.

   • Wiring a standard tamper:

TYPE 1: Standard Tamper
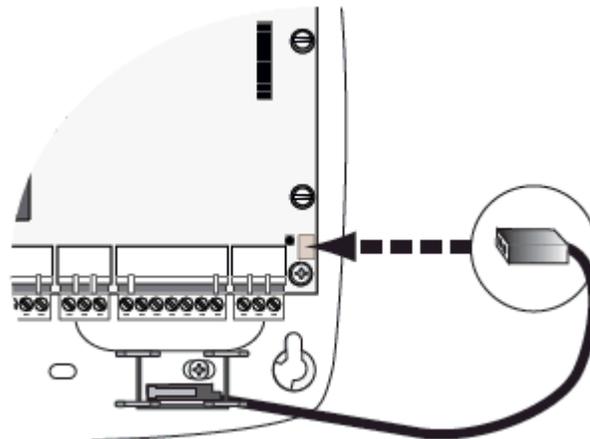
- Wiring an off-the-wall tamper:

TYPE 2: "Off-the-Wall" Tamper
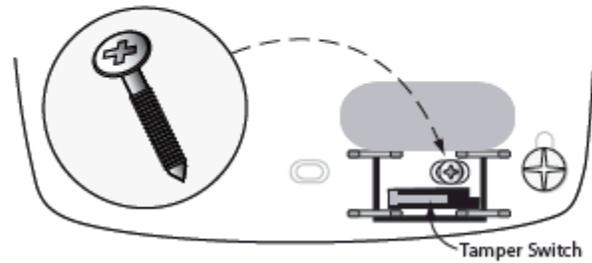


Tamper Switch

5. Set the tamper, using pliers at the four locations indicated below.
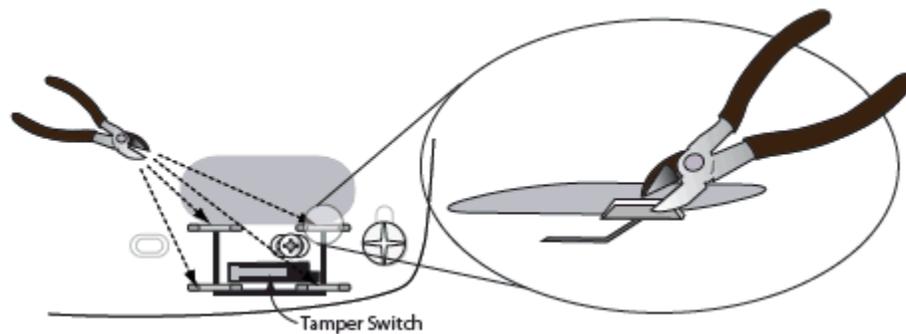


Tamper Switch

**Warning:** Do **not** apply power at this time.

6. Connect the Ethernet cable and the Tamper wire, as shown below.
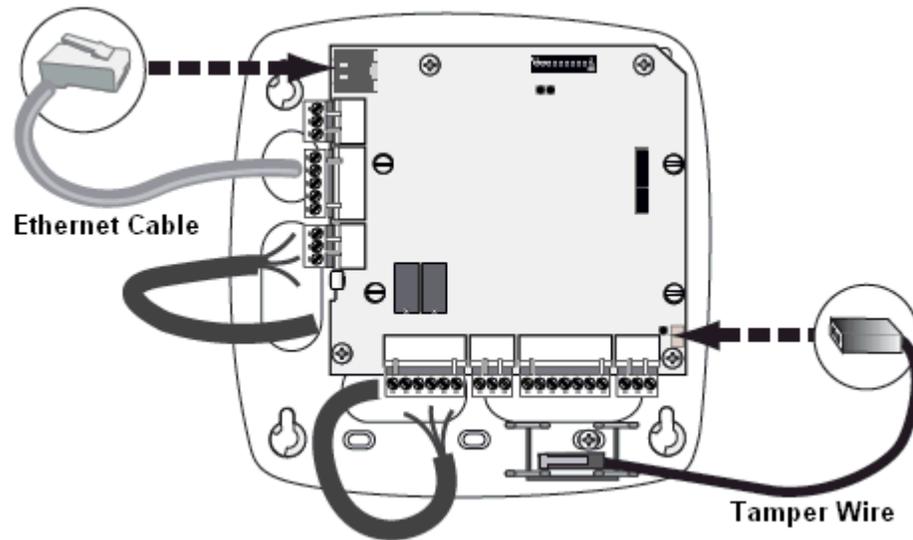


7. Set DIP switch settings for the panel address, communication termination and biasing. See DIP Switch Settings, page 36.

8. Check all wiring at this time.

   **Caution:** Improper wiring can cause damage to the NetAXS-123 at power up and result in a loss of warranty.

9. Apply power to the panel.

10. Check for the Run LED for a successful power-up. If the LED is blinking green, the panel is powered up successfully.

11. Close the cover.

### 3.1.2 Installing over a Gang Box

1.  Review the panel layout, cable runs, and power needs.

2.  Mount the back of the panel on the gang box.
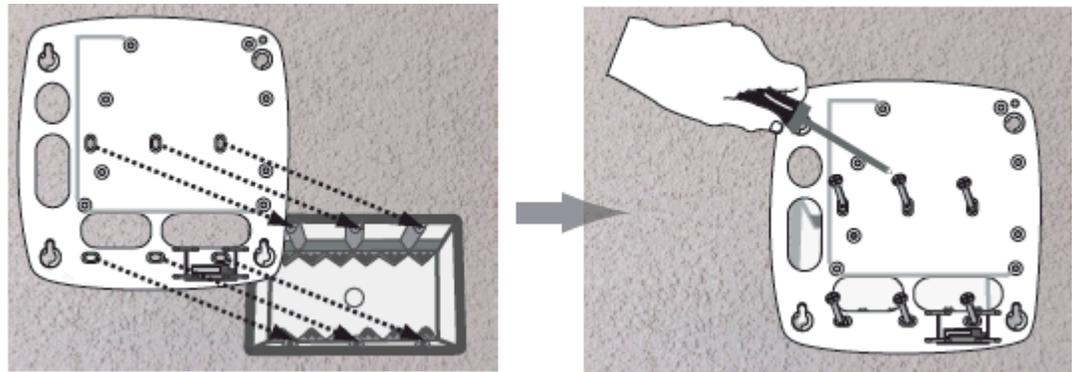


3.  Pull the wires from the gang box through the knockout holes in the base of the enclosure.
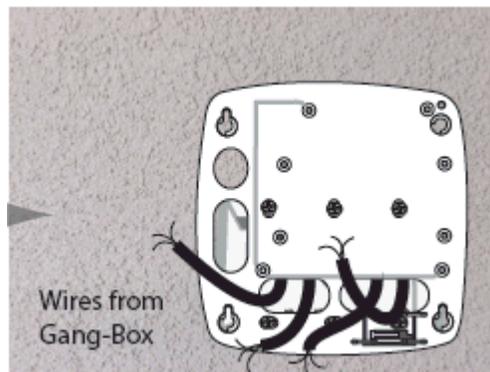


4.  Perform steps 3 through 10 in the preceding section ( Installing on a Wall, page 11) to complete the installation of the panel over a gang box.

### 3.1.3  Installing on a Flat Surface

1. Review the panel layout, cable runs, and power needs.

2. Mount the back of the enclosure on the surface, either with drywall screes or threaded wall anchors.



3. Break off the appropriate plastic wiring tabs, using pliers.
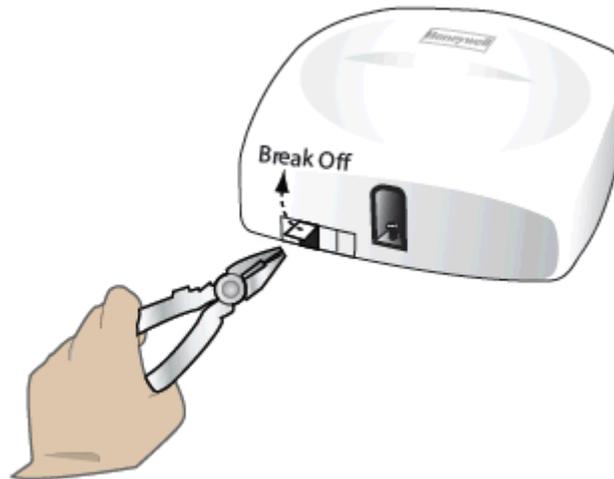


4. Perform steps 3 through 10 in Installing on a Wall, page 11 to complete the installation of the panel over a horizontal surface.

## 3.2  Installing the Standard Enclosure Panel

Perform the following steps to install the NetAXS-123 Standard Enclosure panel:

**Warning:** Use a static strap whenever touching the panel to ensure protection from Electrostatic Discharge (ESD).

1. (Optional) Remove the green ground wire and the door.
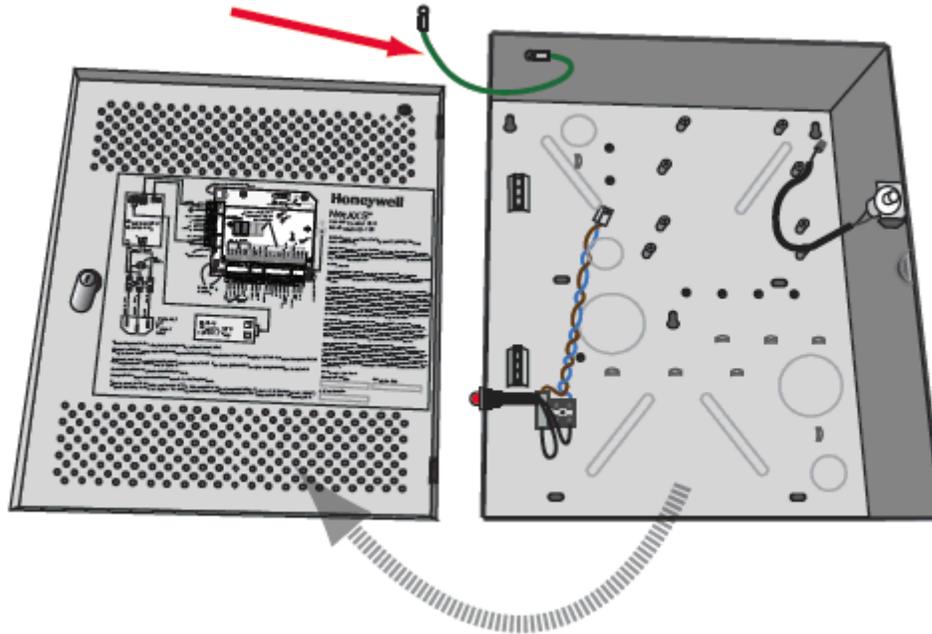
2. Partially install the four power supply screws.
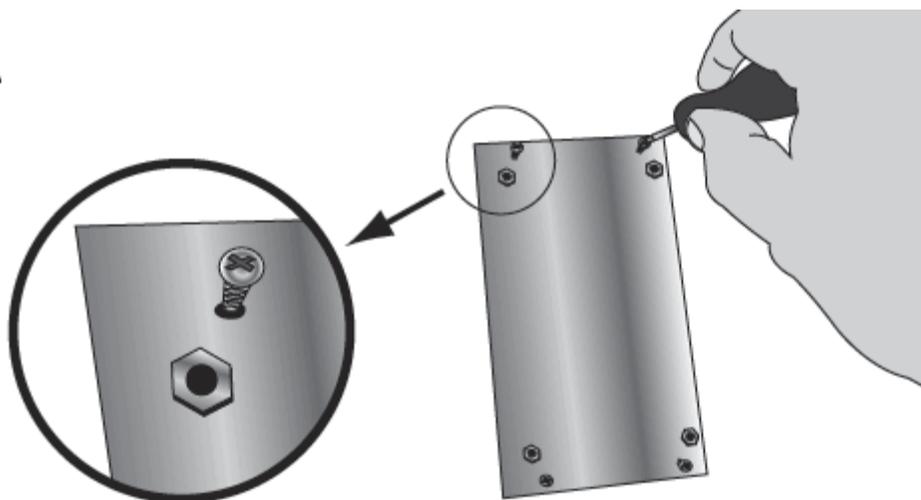
3. Install the power supply.

   a. Fit the power supply screws through the key holes in the left side of the cabinet, and seat the power supply by pulling down.
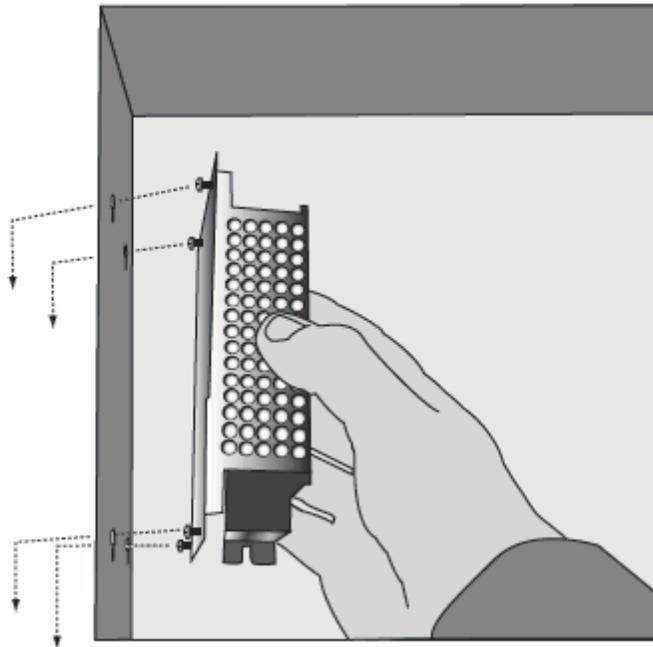
   b. From the outside of the cabinet, tighten the screws to lock the power supply in place.
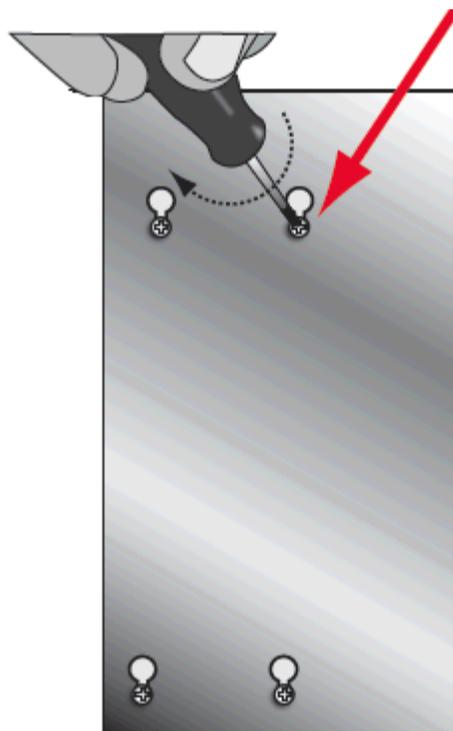
c. Inside the cabinet, screw in the two self-tapping screws (supplied in the product box) at the top and bottom of the power supply.

Warning: These screws **must** be installed to ground the power supply to the enclosure.

d. Plug the connector that is attached to the blue and brown wires into the power supply.
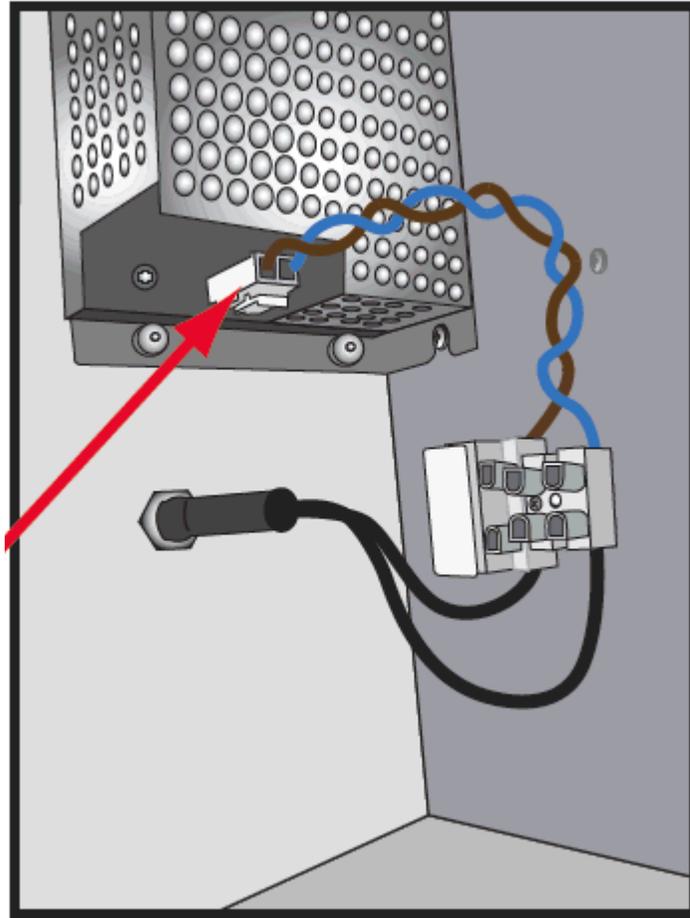
4. Select one of the following three possible entry points for the power cable:

**Warning:** Do not apply power at this time. Be sure the power cable is disconnected from the external power source before following this step.

- Through the bottom conduit knockout, which directly connects AC power to the terminal block.
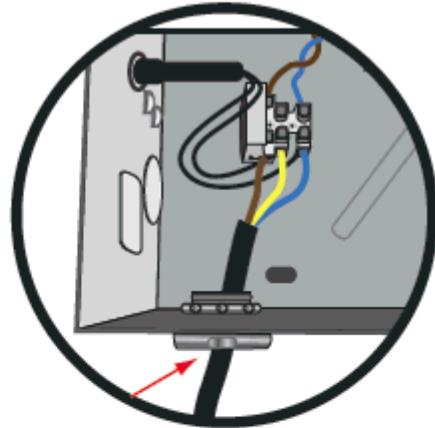
OR

- Through the side conduit knockout, which also directly connects AC power to the terminal block.
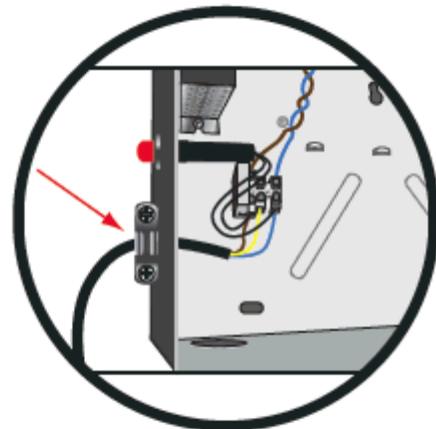
OR

- Through the optional AC input receptacle. **Note:** the brown and blue wires must be twisted together from the point of entry at the AC input receptacle to the Terminal Block.
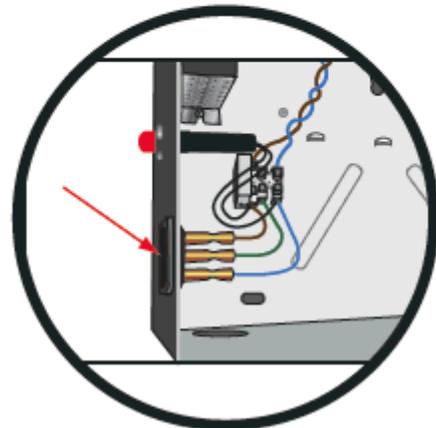
5. Use a pencil to mark the location of the holes on the wall.
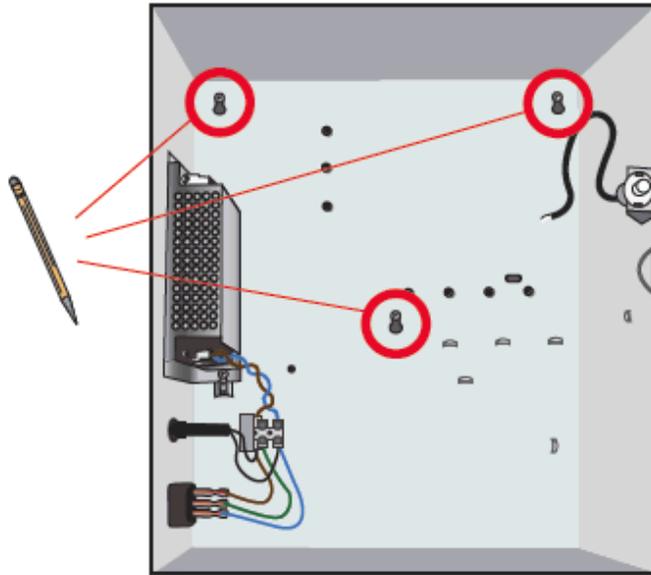


6. Screw the NetAXS-123 Controller Board with the four captive screws

7. Hold the Add-On Board over the Controller Board and seat the board-to-board connector into the Controller Board. Secure the Add-On Board onto the Controller Board with the four captive finger screws. For more explanation of the Add-On Board installation, see the next section, Installing the Add-On Board.
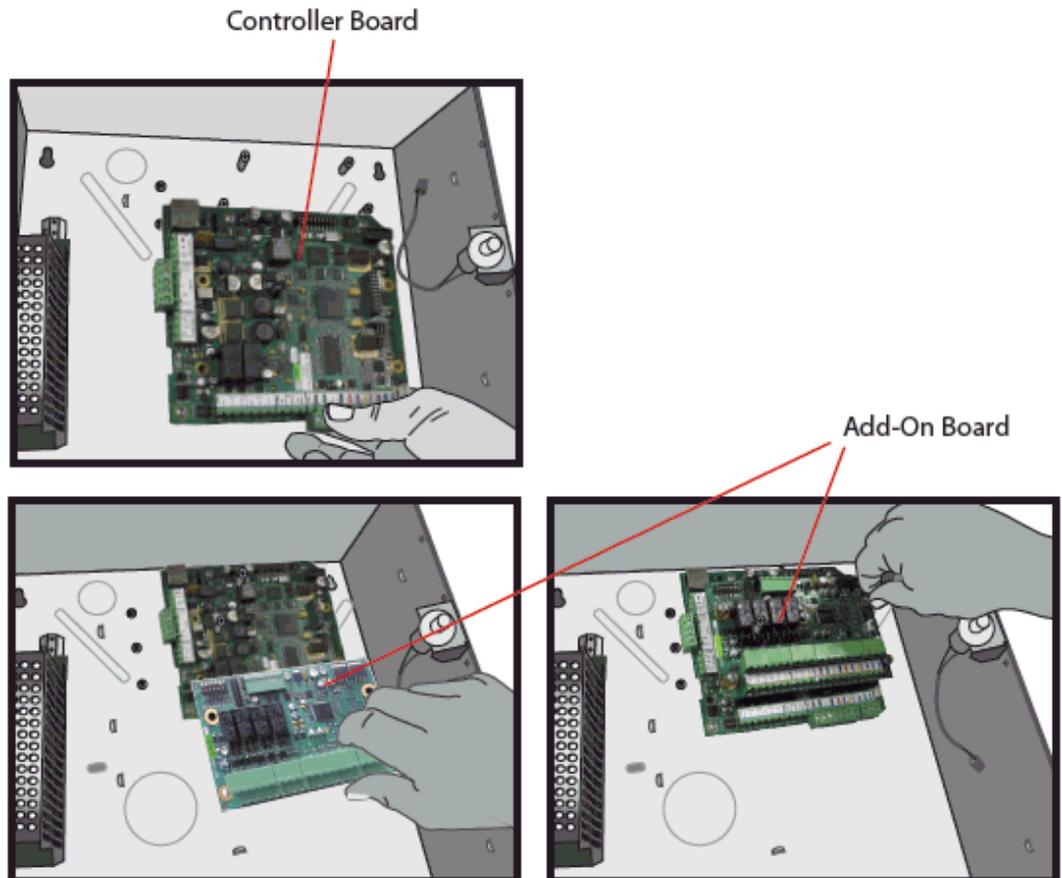
8. Connect the wiring harness, as shown.

**Warning:** DO NOT CONNECT the AC power or the battery wires yet!
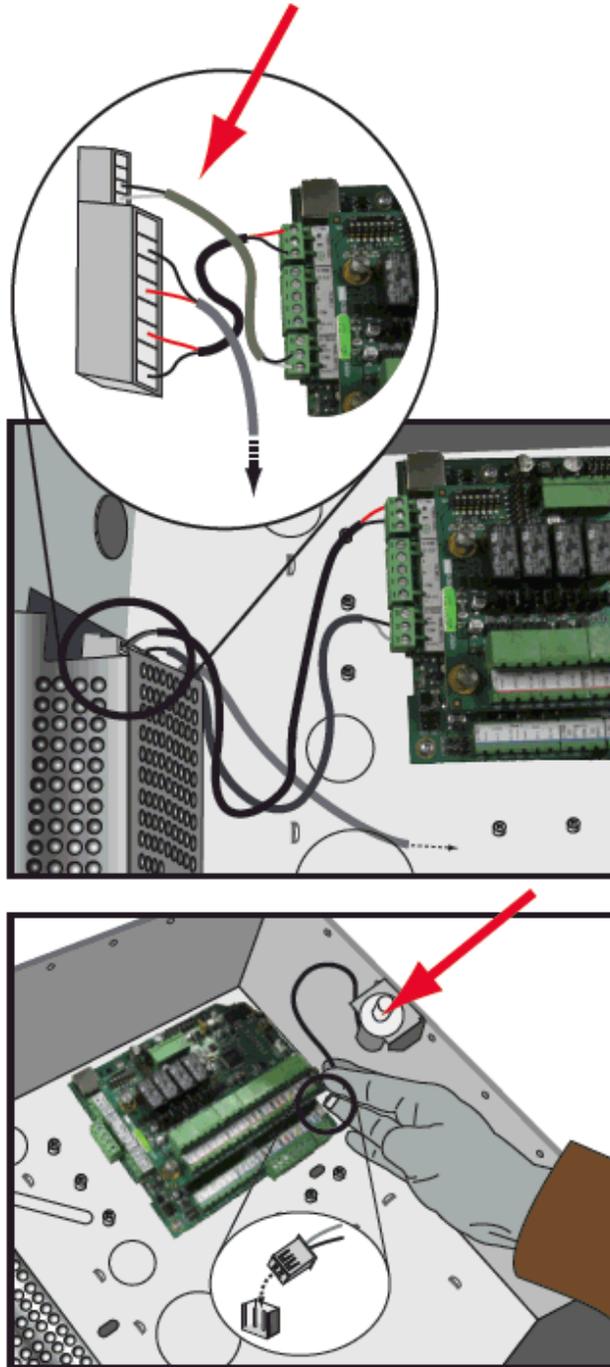


9. Power up the NetAXS-123 Controller Board and configure the system. Refer to the *NetAXS-123 Startup Guide* (800-05780) for instructions.

10. Connect the battery.



11. Attach the door to the cabinet.

12. Re-connect the green ground wire to the cabinet door.
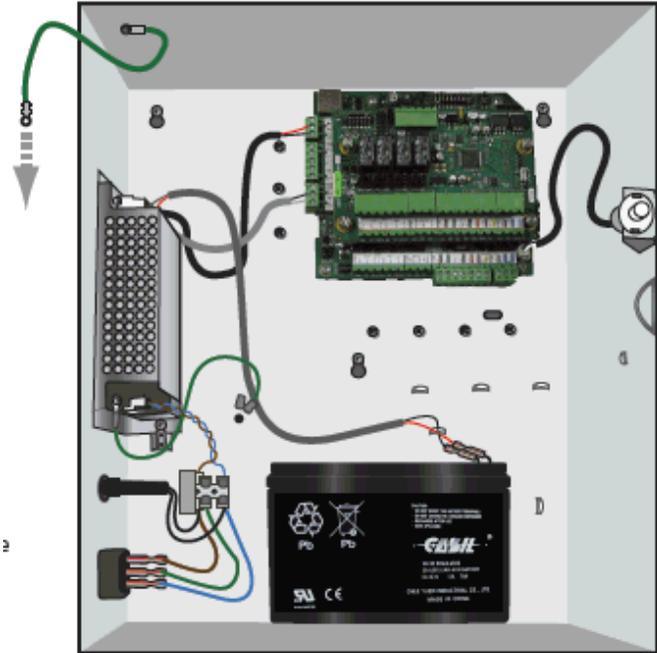
## 3.3 Installing the Add-On Board

⚠️ **Warning:** To prevent damage to the NXC1 Controller Board, **remove power** from the NetAXS-123 panel before installing or removing a NetAXS-123 Add-On Board.

1. On the NetAXS-123 Controller Board, locate the four posts called out in the image shown below:
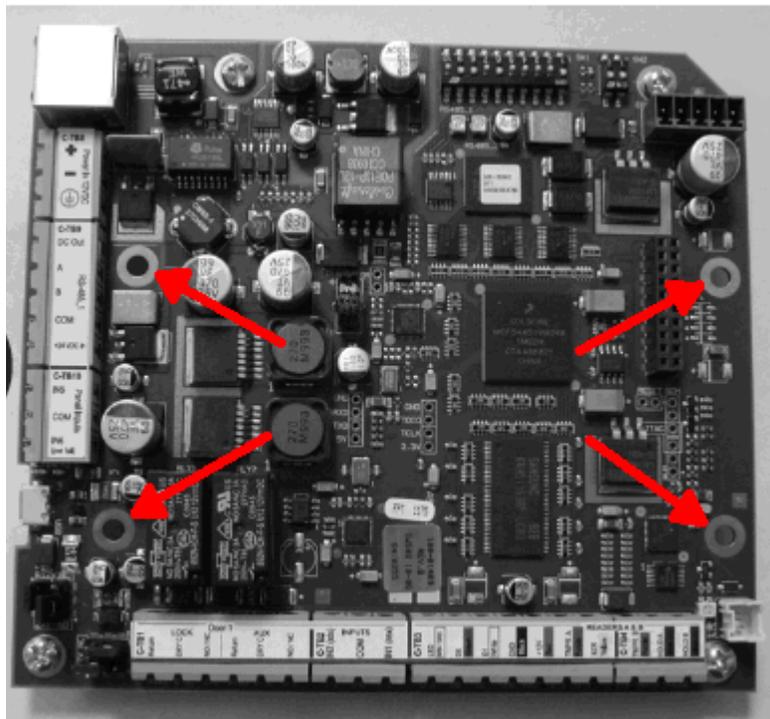


NetAXS-123 Controller Board

2. Pick up the Add-On Board and notice the four posts on the bottom.
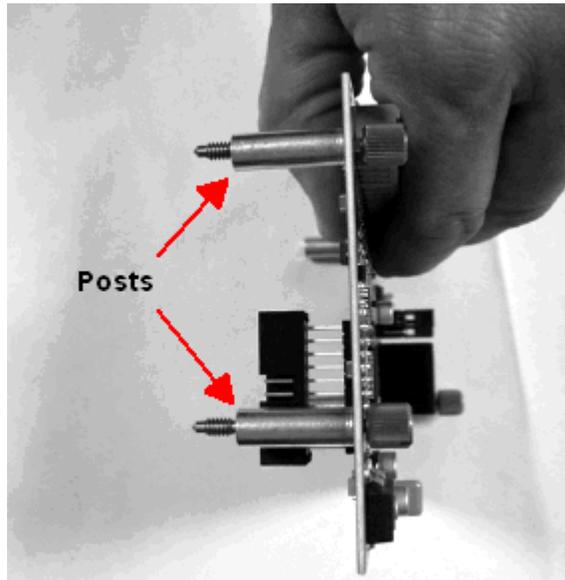


3. Seat the Add-On Board posts into the four posts on the NetAXS-123 Controller Board, aligning the terminal-block edge of the Add-On Board with the terminal-block edge of the Controller Board.
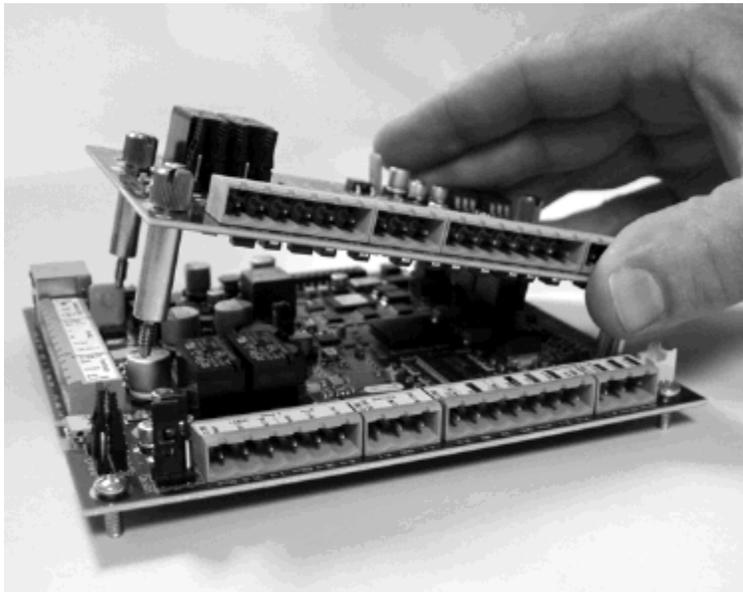


4. With your fingers, tighten the posts'screws.

5. Set the relay jumpers.

   a. Use the following figure to locate the jumpers.
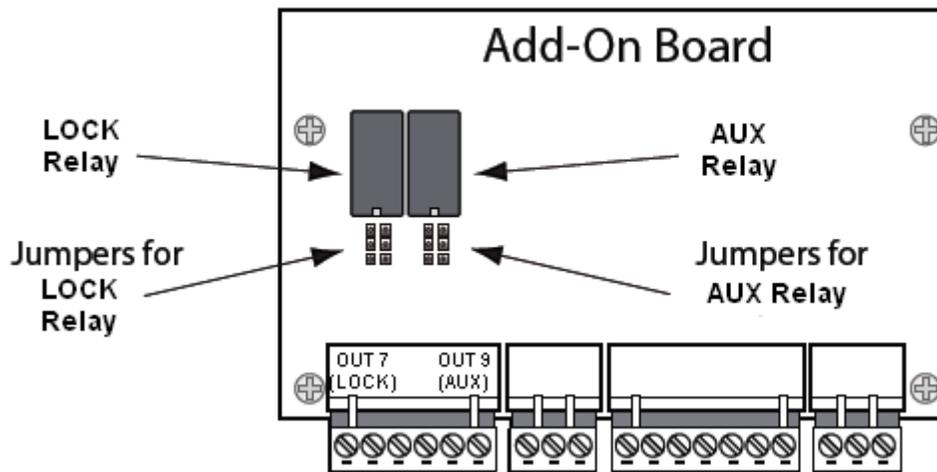


   b. See Add-On Board DIP Switch and Jumper Settings, page 40, to set the power source (12VDC power or external power) and the relay contact position (Normally Open or Normally Closed).

6. Wire the door strikes. See Wiring Door Strikes, page 33, for instructions.

## 3.4  Wiring the Readers

Each reader port supports one or two readers (entry and exit readers) with Wiegand output format. The maximum power draw is 500 mA for readers and AUX Power combined.

To fully utilize each reader port, a shielded 7-conductor cable (18-22 AWG) is required. If you don't need the HOLD LINE feature, you can use the standard 6-conductor cable (HAS part number NC186-BL).

**Note:**  If you are using additional HOLD lines for readers, you will need an 8-conductor cable.

The cable shield should be grounded at the panel only. Grounding at both ends can cause ground loops which can be disruptive. The maximum recommended length of wiring is 500 feet per reader.

Figure 5 shows a one-door panel, with the readers wired to terminal blocks C-TB3 and C-TB4 on the Controller Board, and to terminal blocks IO-TB3, IO-TB4, IO-TB7, and IO-TB8 on the Add-On Board. The wires are color-coded to their labeled terminals. If this were a two-door panel, the two additional readers would be wired to terminal blocks C-TB1 and C-TB2 on the Controller Board, and to terminal blocks IO-TB1 and IO-TB2 on the Add-On Board.

*Figure 5:    Wiring Readers to the Controller Board*
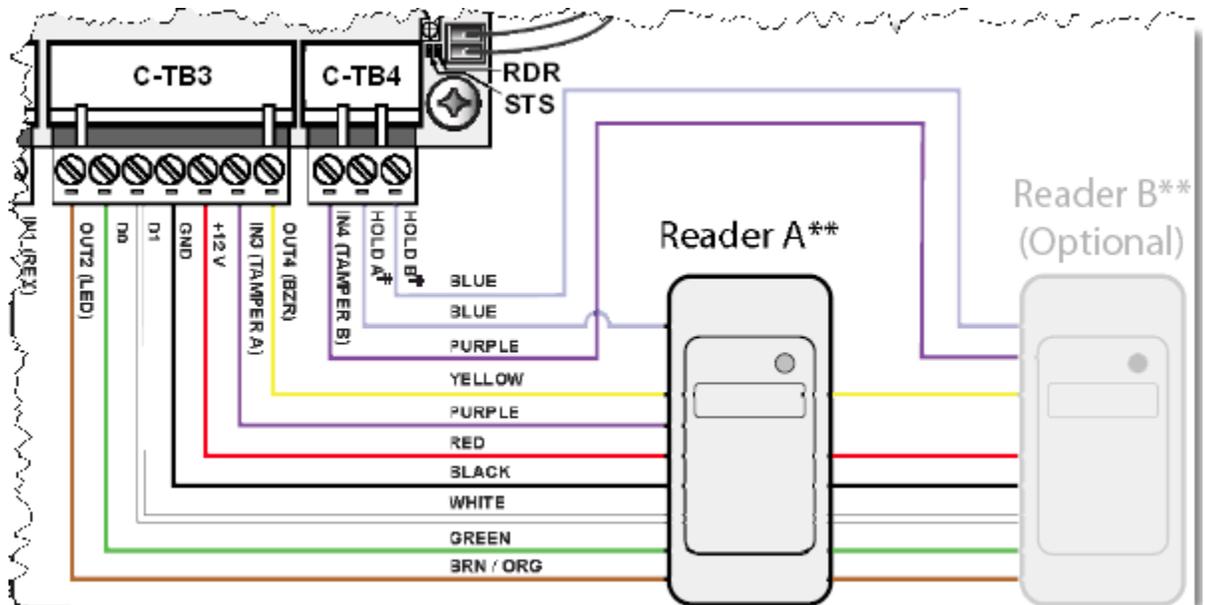


**Note:**  Reader A and Reader B share LED, DO, D1, GND, and +12V connections. Each reader has its own Tamper and Hold.

The following three tables list the factory controller board I/O default settings for door-1, door-2, and door-3 configurations. These are the mappings for readers, inputs, and outputs. Reader A and Reader B share many common connections.

Table 5 shows the input/output factory default wiring for a one-door configuration on the Controller Board.

***Table 5:*** *Factory Default Configuration Settings for Door 1*

| Type | Purpose | Web Default Name | Terminal Block Label | Reader A | Reader B | Other |
|---|---|---|---|---|---|---|
| Input | Egress/ Request to Exit (REX) | Input 1: Door 1 Egress | C-TB2 IN1 (REX) | Input 1[a] | Input 1[a] | |
| | Door Status | Input 2: Door 1 Status | C-TB2 IN2 (STS) | Input 2[a] | Input 2[a] | |
| | Reader Tamper | Input 3: Door TMPR-A | C-TB3 TMPR A | Input 3 | | |
| | Reader Tamper | Input 4: Door TMPR-B | C-TB4 TMPR B | | Input 4 | |
| | General | Input 5: GENERAL PURPOSE | C-TB10 IN5 | | | Input 5 |
| | Power/ General | Input 6: POWER | C-TB10 IN6 (PWR FAIL) | | | Input 6 |
| | Panel Tamper | PANEL TAMPER | ALTER_T MPR | | | Input 20 |
| Output | Lock Relay | Output #1 | C-TB1 LOCK | Output 1[a] | Output 1[a] | |
| | Reader LED | Output #2 | C-TB3 LED | Output 2[a] | Output 2[a] | |
| | AUX Relay | Output #3 | C-TB1 AUX | | | Output 3 |
| | Reader Buzzer | Future Feature | C-TB3 BZR | Output 4[a] | Output 4[a] | |

[a] Readers A and B share the same connection.

**Notes**:

- The Controller Board includes Inputs 7 and 8 but they are reserved for system use.
- The Controller Board also includes Output 5, a general-purpose output, and Output 6, which is reserved by the system to control the boards' RUN LEDs and thus is unavailable for user control.
- Reader LED, while it is an output, should never be used to control anything other than its associated reader's LED.

Table 6 lists the factory I/O board default settings for a door 2. These mappings should be used for the readers, inputs, and outputs when either a 1- or 2-door Add-On Board is attached to the board-to-board connector on the Controller Board.

***Table 6:*** *Factory Default Configuration Settings for Door 2*

| Type | Purpose | Web Default Name | Terminal Block Label | Reader A | Reader B | Other |
|---|---|---|---|---|---|---|
| Input | Egress/ Request to Exit (REX) | Input 9: Door 2 Egress | IO-TB2 IN9 (REX) | Input 9[a] | Input 9[a] | |
| | Door Status | Input 10: Door 2 Status | IO-TB2 IN10 (STS) | Input 10[a] | Input 10[a] | |
| | Reader Tamper | Input 11: Door TMPR-A | IO-TB3 TMPR A | Input 11 | | |
| | Reader Tamper | Input 12: Door TMPR-B | IO-TB4 TMPR B | | Input 12 | |
| Output | Lock Relay | Output #7 | IO-TB1 LOCK | Output 7[a] | Output 7[a] | |
| | Reader LED | Output #8 | IO-TB3 LED | Output 8[a] | Output 8[a] | |
| | AUX Relay | Output #9 | IO-TB1 AUX | | | Output 9 |
| | Reader Buzzer | Future Feature | IO-TB3 BZR | Output 10[a] | Output 10[a] | |

[a] Readers A and B share the same connection.

Table 7 lists the factory Add-On Board default settings for a door 3. These mappings should be used for the readers, inputs, and outputs when either a 1- or 2-door Add-On Board is attached to the board-to-board connector on the controller board.

***Table 7:*** *Factory Default Configuration Settings for Door 3*

| Type | Purpose | Web Default Name | Terminal Block Label | Reader A | Reader B | Other |
|------|---------|------------------|----------------------|----------|----------|-------|
| Input | Egress/ Request to Exit (REX) | Input 9: Door 2 Egress | IO-TB2 IN9 (REX) | Input 9[a] | Input 9[a] | |
| | Door Status | Input 10: Door 2 Status | IO-TB2 IN10 (STS) | Input 10[a] | Input 10[a] | |
| | Reader Tamper | Input 11: Door TMPR-A | IO-TB3 TMPR A | Input 11 | | |
| | Reader Tamper | Input 12: Door TMPR-B | IO-TB4 TMPR B | | Input 12 | |
| Output | Lock Relay | Output #11 | IO-TB5 LOCK | Output 11[a] | Output 11[a] | |
| | Reader LED | Output #12 | IO-TB7 LED | Output 12[a] | Output 12[a] | |
| | AUX Relay | Output #13 | IO-TB5 AUX | | | Output 13 |
| | Reader Buzzer | Future Feature | IO-TB7 BZR | Output 14[a] | Output 14[a] | |

[a] Readers A and B share the same connection.

**Notes:**

- Reader LEDs, while they are outputs, should never be used to control anything other than their associated reader LEDs.
- Incorrect wiring of the reader to the panel can cause the panel to abnormally stop operating or to operate erratically.

- NetAXS-123 supports a variety of Wiegand reader models. Some readers have only one brown wire for LED control; others have two possible LED control inputs--orange for the green LED and brown for the red LED. RED is the normal state of the Reader LED operation. The LED turns GREEN for two seconds after a valid card read. Although readers operate similarly, LED control can vary, depending on the manufacturer. Therefore, your readers may require some testing to identify the right LED wire when the reader uses Dual LED wires. If you are using Dual Line LED control, it's recommended that you try the ORANGE-colored wire for a GREEN LED.

- The Reader Buzzer feature is not currently supported on the NetAXS-123 panels.

## 3.5 Wiring Door Strikes

Follow these steps to wire the door strikes to the Controller and Add-On Boards:

1. Use the following figure to locate the door strike terminals on the board.
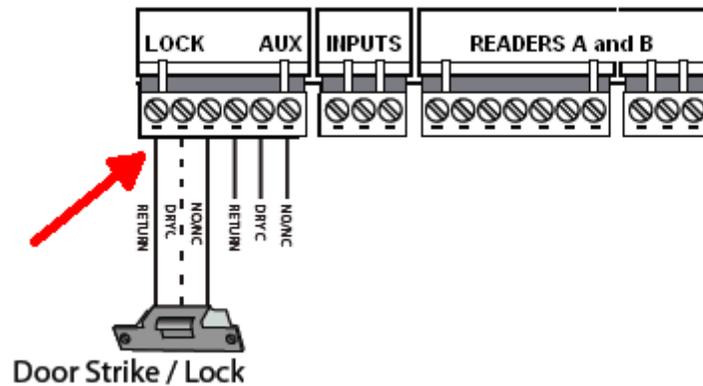
2. Use the following figure to wire the door strike/mag lock according to the power supply used. Be sure to use the S4 suppressor kits as shown below.
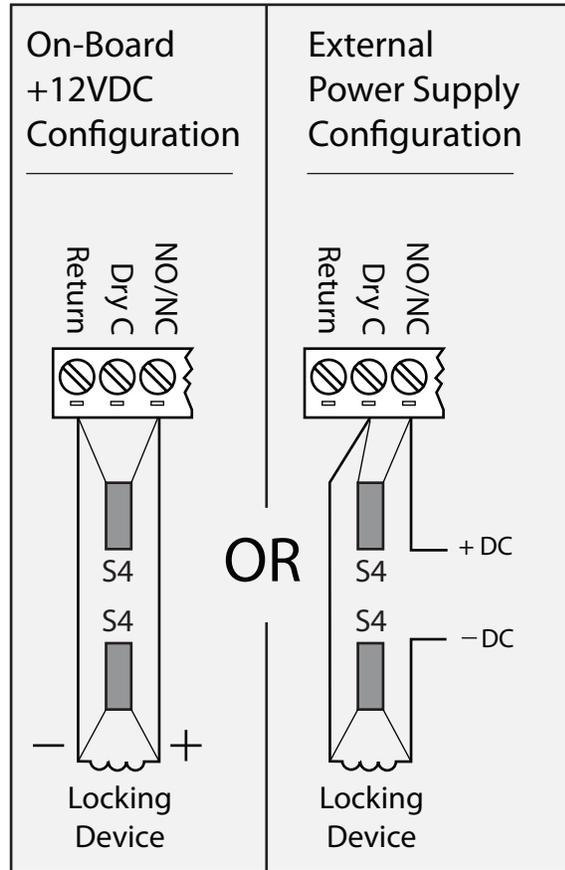


**Notes:**

- As shown in the illustration above, the Dry C terminal for the On-Board option should not be connected. Similarly on the External Power Supply side, the Return terminal should not be connected.

- The On-Board option is used when jumpers are set for 12VDC. The External Power Supply options is used when the jumpers are set to External Power (see Jumper Settings, page 39 for details).

## 3.6  Setting DIP Switches and Jumpers

### 3.6.1  Controller Board DIP Switch and Jumper Settings

Figure 6 locates the NetAXS-123 DIP switch panel and the output 1 and output 3 relay jumpers.

*Figure 6:    Controller Board DIP Switch and Jumper Location*
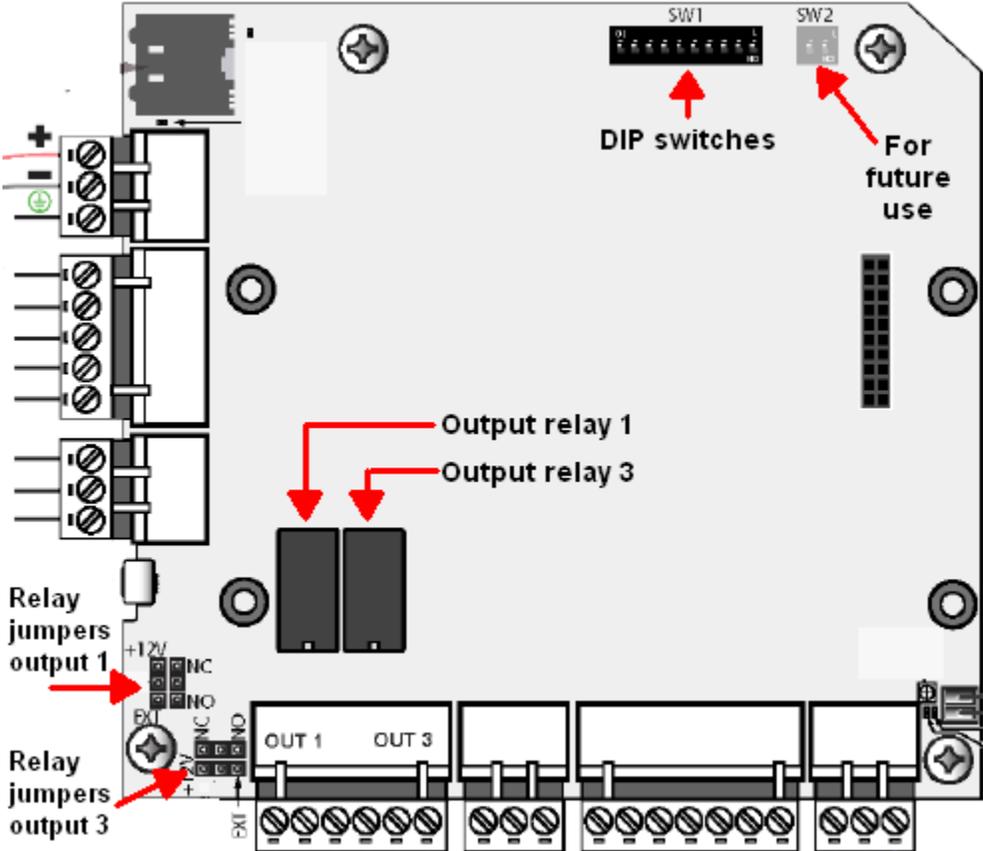
## DIP Switch Settings

Use the following DIP switch configurations to set the panel address.

*Table 8:* *NetAXS-123 SW1 DIP Switch Settings*

| S1 | S2 | S3 | S4 | S5 | S6 | S7[a] | S8[b] | S9[b] | S10 | Selection |
|----|----|----|----|----|----|----|----|----|-----|-----------|
| ON | OFF | OFF | OFF | OFF | | | | | | Address 1 (default) |
| OFF | ON | OFF | OFF | OFF | | | | | | Address 2 |
| ON | ON | OFF | OFF | OFF | | | | | | Address 3 |
| OFF | OFF | ON | OFF | OFF | | | | | | Address 4 |
| ON | OFF | ON | OFF | OFF | | | | | | Address 5 |
| OFF | ON | ON | OFF | OFF | | | | | | Address 6 |
| ON | ON | ON | OFF | OFF | | | | | | Address 7 |
| OFF | OFF | OFF | ON | OFF | | | | | | Address 8 |
| ON | OFF | OFF | ON | OFF | | | | | | Address 9 |
| OFF | ON | OFF | ON | OFF | | | | | | Address 10 |
| ON | ON | OFF | ON | OFF | | | | | | Address 11 |
| OFF | OFF | ON | ON | OFF | | | | | | Address 12 |
| ON | OFF | ON | ON | OFF | | | | | | Address 13 |
| OFF | ON | ON | ON | OFF | | | | | | Address 14 |
| ON | ON | ON | ON | OFF | | | | | | Address 15 |
| OFF | OFF | OFF | OFF | ON | | | | | | Address 16 |
| ON | OFF | OFF | OFF | ON | | | | | | Address 17 |
| OFF | ON | OFF | OFF | ON | | | | | | Address 18 |
| ON | ON | OFF | OFF | ON | | | | | | Address 19 |
| OFF | OFF | ON | OFF | ON | | | | | | Address 20 |
| ON | OFF | ON | OFF | ON | | | | | | Address 21 |

***Table 8:*** *NetAXS-123 SW1 DIP Switch Settings* (continued)

| S1 | S2 | S3 | S4 | S5 | S6 | S7[a] | S8[b] | S9[b] | S10 | Selection |
|---|---|---|---|---|---|---|---|---|---|---|
| OFF | ON | ON | OFF | ON | | | | | | Address 22 |
| ON | ON | ON | OFF | ON | | | | | | Address 23 |
| OFF | OFF | OFF | ON | ON | | | | | | Address 24 |
| ON | OFF | OFF | ON | ON | | | | | | Address 25 |
| OFF | ON | OFF | ON | ON | | | | | | Address 26 |
| ON | ON | OFF | ON | ON | | | | | | Address 27 |
| OFF | OFF | ON | ON | ON | | | | | | Address 28 |
| ON | OFF | ON | ON | ON | | | | | | Address 29 |
| OFF | ON | ON | ON | ON | | | | | | Address 30 |
| ON | ON | ON | ON | ON | | | | | | Address 31 |
| | | | | | OFF | | | | | Downstream Panel |
| | | | | | ON | | | | | Gateway Panel (Default) |
| | | | | | | OFF | | | | Uses the User Provided Ethernet IP address (Default) |
| | | | | | | ON | | | | Uses the Default Ethernet IP Address (192.168.1.150) |
| | | | | | | | OFF | OFF | | RS-485_1 termination (EOL) DISABLED (Default) |
| | | | | | | | ON | ON | | RS-485_1 termination (EOL) ENABLED (Default) |
| | | | | | | | | | OFF | Future Use (Default) |
| | | | | | | | | | ON | Future Use |

a. DIP Switch 7 does NOT require a panel reboot to take effect. This does not affect the USB IP address.

b. Both DIP Switch 8 and DIP Switch 9 need to be either ON or OFF to be properly configured.

*Table 9: NetAXS-123 SW2 DIP Switch Settings*

| S1[a] | S2[a] | Selection |
|-------|-------|-----------|
| OFF | OFF | RS-485_2 termination (EOL) DISABLED |
| ON | ON | RS-485_2 termination (EOL) ENABLED (FUTURE) (Default) |

a. Both DIP Switch 1 and DIP Switch 2 need to be either ON or OFF to be properly configured.

**Note**: When you use the DIP switches to reset a panel to the original factory default values, the Event History is lost and any customized databases are removed, so the panel is reset with the original factory default database. This does not affect the Ethernet IP address.

You can also use this ASCII command:

`_I=pn_R`

This command resets the panel to the original factory default values, but it only removes the customized databases and restores the original factory default database. The Event History is retained.

**To reset the panel to the factory default values:**

1. Make a note of the existing settings on SW1 DIP switches.

2. While the panel is powered up, turn all DIP switches to the OFF position.

3. Power down, then power the panel back up.

4. Wait for the panel to come up. The RUN LED should flicker fast.

5. Set the DIP switches back to their original positions.

6. Power down, then power the panel back up.

7. After the the panel comes up, the RUN LED should flash normal.

The panel is now reset to the original factory default values.

**Note:** Address 0 is not a valid setting.

*Jumper Settings*

The NetAXS-123 Controller Board provides two jumper sets, one each for output relay 1 and output relay 3. Each relay has two 3-pin jumpers associated with it. One jumper selects either external power (EXT) or self-whetted (on-board, +12V) power to be applied to the relay contact load. The other jumper is used to select Normally Open (NO) or Normally Closed (NC) relay contacts. There is a total of four 3-pin jumpers (two per relay) on the Controller Board.

*Figure 7:    NetAXS-123 Controller Board Jumpers*
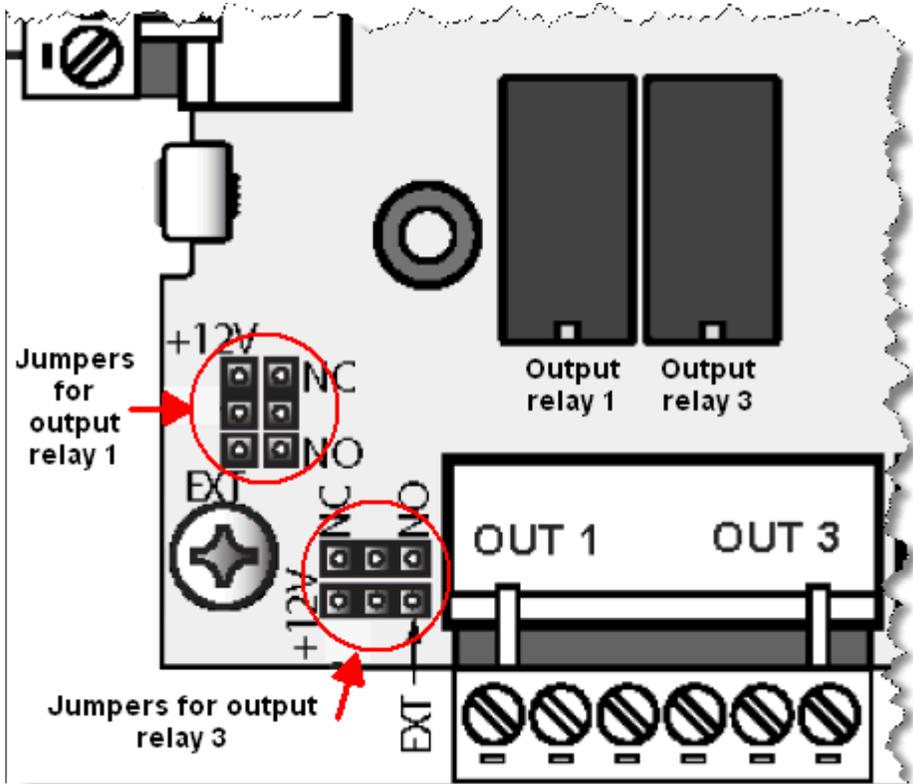


Each relay is associated with two jumpers. As shown below, a relay's left jumper configures the relay's load source (12VDC or External), and the right relay jumper configures the relay contact type (Normally Closed or Normally Open).

- Setting the jumpers to configure the power source:

| 12VDC | External |
|-------|----------|
|  |  |

**Note:** The power source selected by the jumper settings shown above configure the power source for the relay. It does not configure the power source for the panel.

•  Setting the jumpers to configure the relay contact type:

| Normally Open | Normally Closed |
|---|---|
| | |

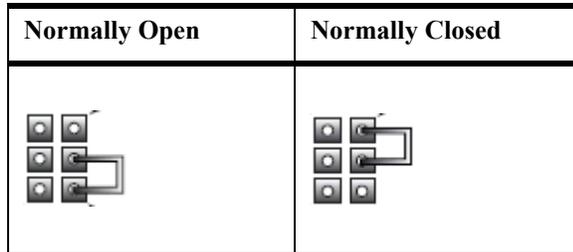### 3.6.2  Add-On Board DIP Switch and Jumper Settings

Figure 8 locates the NetAXS-123 Add-On Board DIP switch panel and the output 1 and output 3 relay jumpers.

*Figure 8:    Add-On Board DIP Switch and Jumper Location*
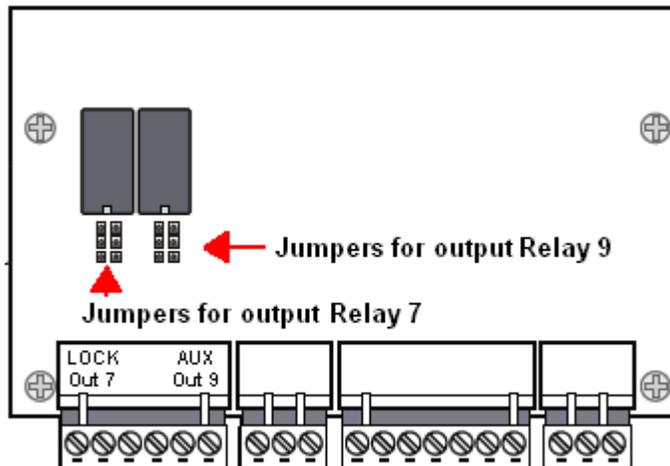
**Note:**  The figure above shows a one-door Add-On Board configuration. If you are instead using a two-door Add-On Board, you will see an additional two relays (and their corresponding jumper sets) to the right of the relays shown. The additional relays and jumpers will configure output 11 and output 13, and all of the jumpers are configured in the same manner.

The NetAXS-123 Controller Board provides two jumper sets, one each for output relay 1 and output relay 3. Each relay has two 3-pin jumpers associated with it. One jumper selects either self-whetted (on-board, +12V) or external power (EXT) to be applied to the relay contact load. The other jumper is

used to select Normally Open (NO) or Normally Closed (NC) relay contacts. There is a total of four 3-pin jumpers (two per relay) on the controller board.

- Setting the jumpers to configure the power source:

| 12V | External |
|-----|----------|
|  |  |

- Setting the jumpers to configure the relay position:

| Normally Open | Normally Closed |
|---------------|-----------------|
|  |  |

## 3.7  Communications

### 3.7.1  USB Communications

The NetAXS-123 Controller Board provides a version 2.0 USB port that connects to the web browser or to a WIN-PAK host. The following figure identifies the location of the port on the board.

**Note:**  USB communication requires the USB A to MicroUSB B cable that is supplied with the panel.
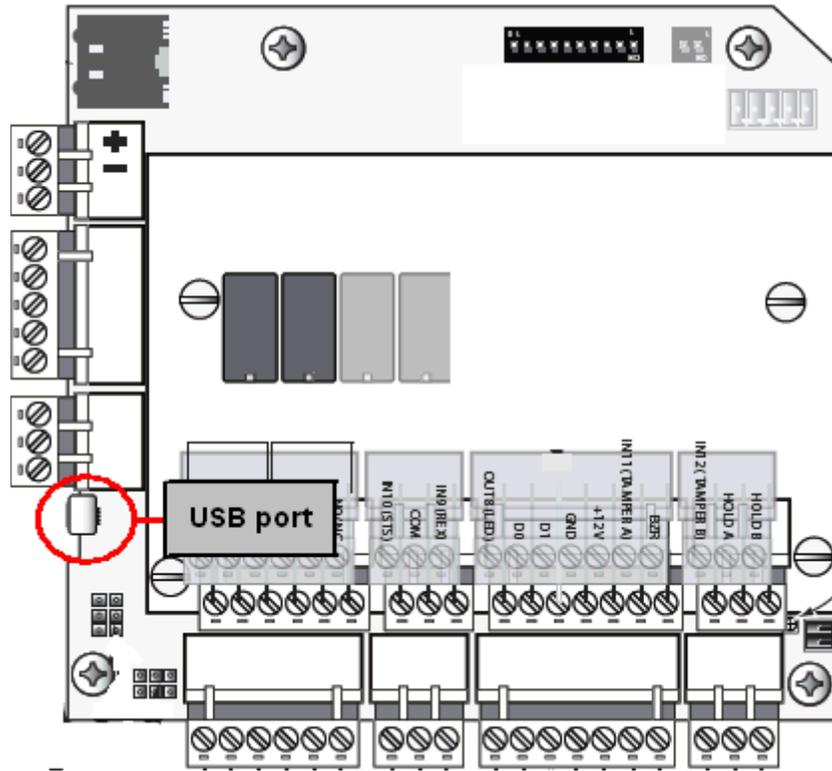


You will need to install a USB driver to support the connection. Follow these steps:

**Warning:** Do NOT connect the USB cable to the panel until AFTER the drivers are installed.

1. Insert the NetAXS-123 Product CD into your Windows-based computer. The NetAXS-123 product menu opens in the web browser.

   **Note**: If the product menu does not open automatically in your browser, right click on the **Start** button and select **Explore**. In the folder tree, find and click the CD drive that is reading the NetAXS-123 Product CD.

2. Click **Install USB Drivers** on the product menu to start the USB driver installation wizard.



3. Click **Next** to display the Ready to Install the Program screen.

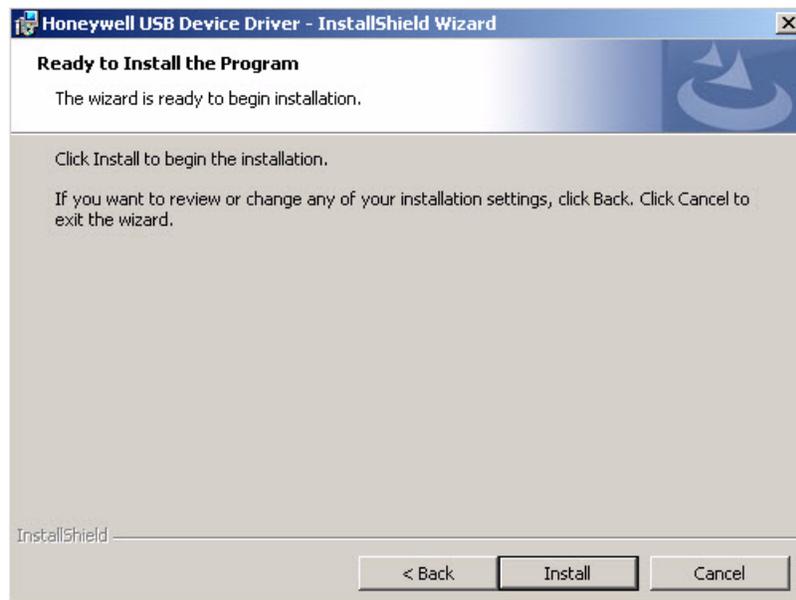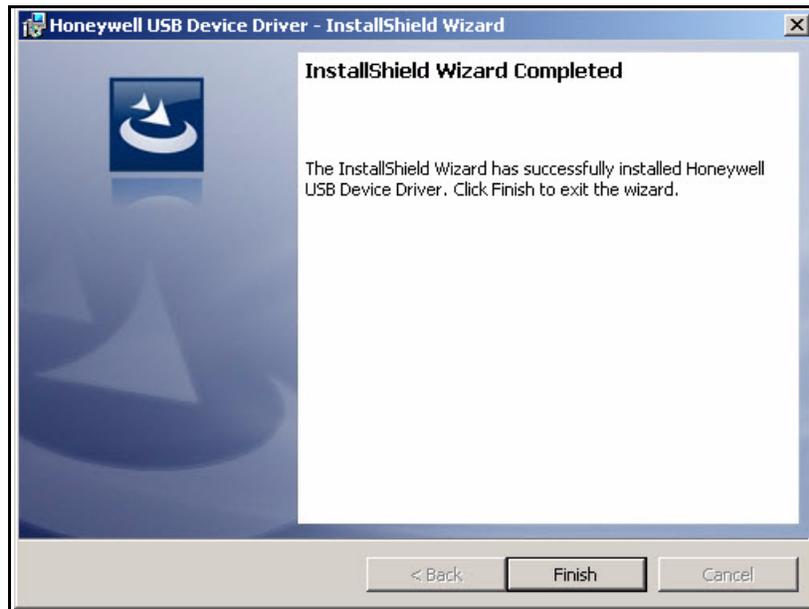**Note:** If confirmation dialog boxes pop up before or during the installation, click the appropriate boxes to allow or approve the installation.



4. Click **Install** to initiate the installation.

5. When the installation is complete, the closing screen appears:



6. Click **Finish**.

7. Connect the computer to the NetAXS-123 controller with a USB-A to Micro USB-B cable.

8. Turn on the power to the NetAXS-123 controller.

For login information, go to https://192.168.2.150.

## 3.7.2 RS-485 Communications

If a NetAXS-123 panel is to be placed onto a prexisting RS-485 dropline loop (NetAXS) it must be setup as the Gateway panel. The interface allows the wiring of a Multidrop communication network of up to 4,000 feet (1200 m) in length. Only one host converter device per dropline is supported.

**Note:** NetAXS-123 must be the Gateway panel on an existing NetAXS loop. The NetAXS-123 panel cannot be placed as a Downstream panel when the Gateway is a NetAXS system.

DIP switch position 6 on the NetAXS-123 panel selects whether the panel is a Gateway or Downstream panel. The switch in the OFF position configures the panel as a Downstream panel; ON configures a Gateway. The panel must be power cycled for a new switch setting to be recognized. DIP switch positions 1-5 are used to select the panel's address on the network. Refer to Table 8 for DIP switch setting information.

DIP switch SW1 positions 8 and 9 are provided for supplying biasing and end-of-line termination for the RS-485 network. The board ships with the switches active. For a Multidrop RS-485 Line, you must turn ON both switch positions 8 and 9 of SW1. (terminated and biased) at the two end-point panels. At all other panels, set DIP switches 8 and 9 in the OFF position. Both switches on a given panel must be set the same. Note that biasing and termination on both ends are present. Use the SW1 positions 8 and 9 ON on both ends of the RS-485 network.

**Note:** For more information on end of line (EOL) termination, contact Honeywell technical support.

**Note:** If an RS-485 network has a NetAXS-123 Gateway panel, no N1000-II, N1000-III, N1000-IV, or NS2 are allowed on the same network. If they are added to a network with a NetAXS-123 Gateway panel, they will not be able to communicate with the host computer. In order to use these panels, a N-485-PCI-3 is required, as shown in Figure 9.

*Figure 9:    RS-485 Configuration via N-485-PCI-3*
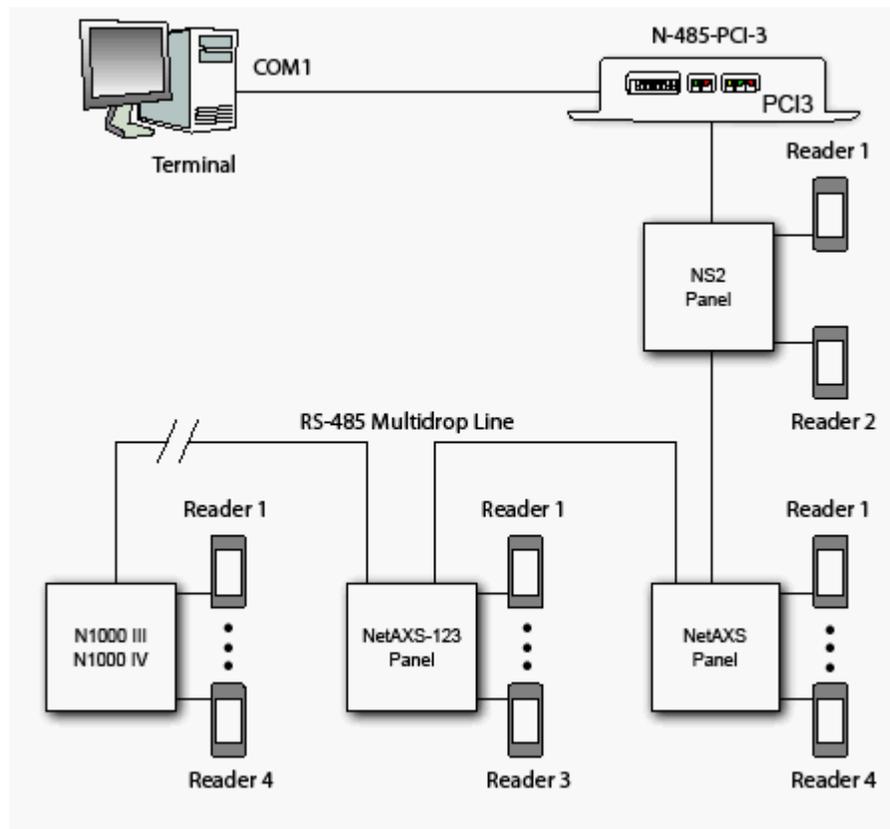


This configuration supports a combined total of 31 N1000 III, N1000 IV, NetAXS, NetAXS-123, and NS2 panels per Multidrop line.

*Figure 10:    RS-485 Configuration via NetAXS-123 Gateway*
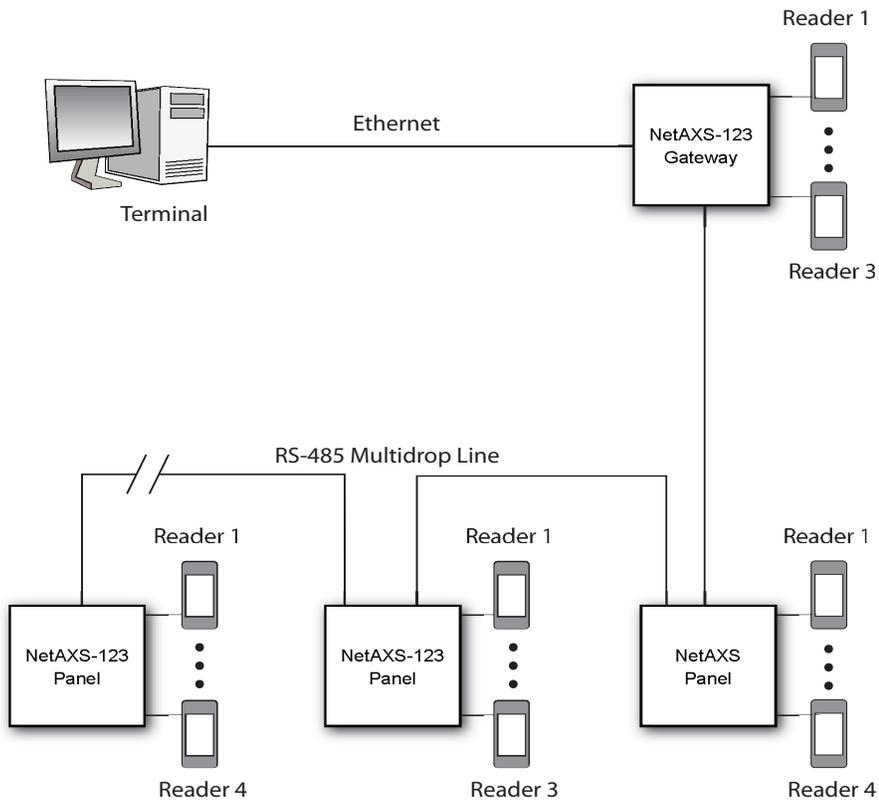


This configuration supports a total of 31 NetAXS and NetAXS-123 panels per Multidrop line.

### 3.7.3 Ethernet TCP/IP Communications

*Figure 11:    Ethernet TCP/IP Configuration*
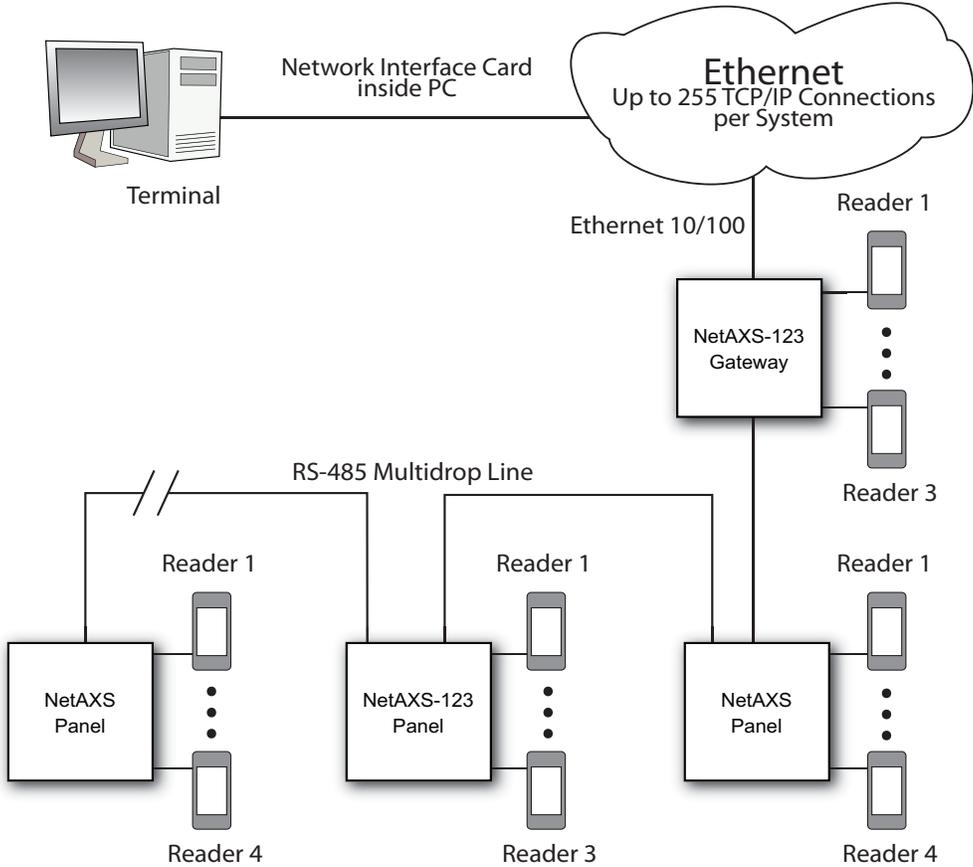


This configuration supports a total of 31 NetAXS and NetAXS-123 panels per Multidrop line.

Each NetAXS-123 panel has a port for an Ethernet TCP/IP interface. The Ethernet TCP/IP interface provides 10/100 MB Ethernet support for each panel.

# 4.0  System Configuration

This section provides wiring diagrams for each of the NetAXS-123 system configurations.

## 4.1  Ethernet Connection

*Figure 12:    Ethernet Connection*
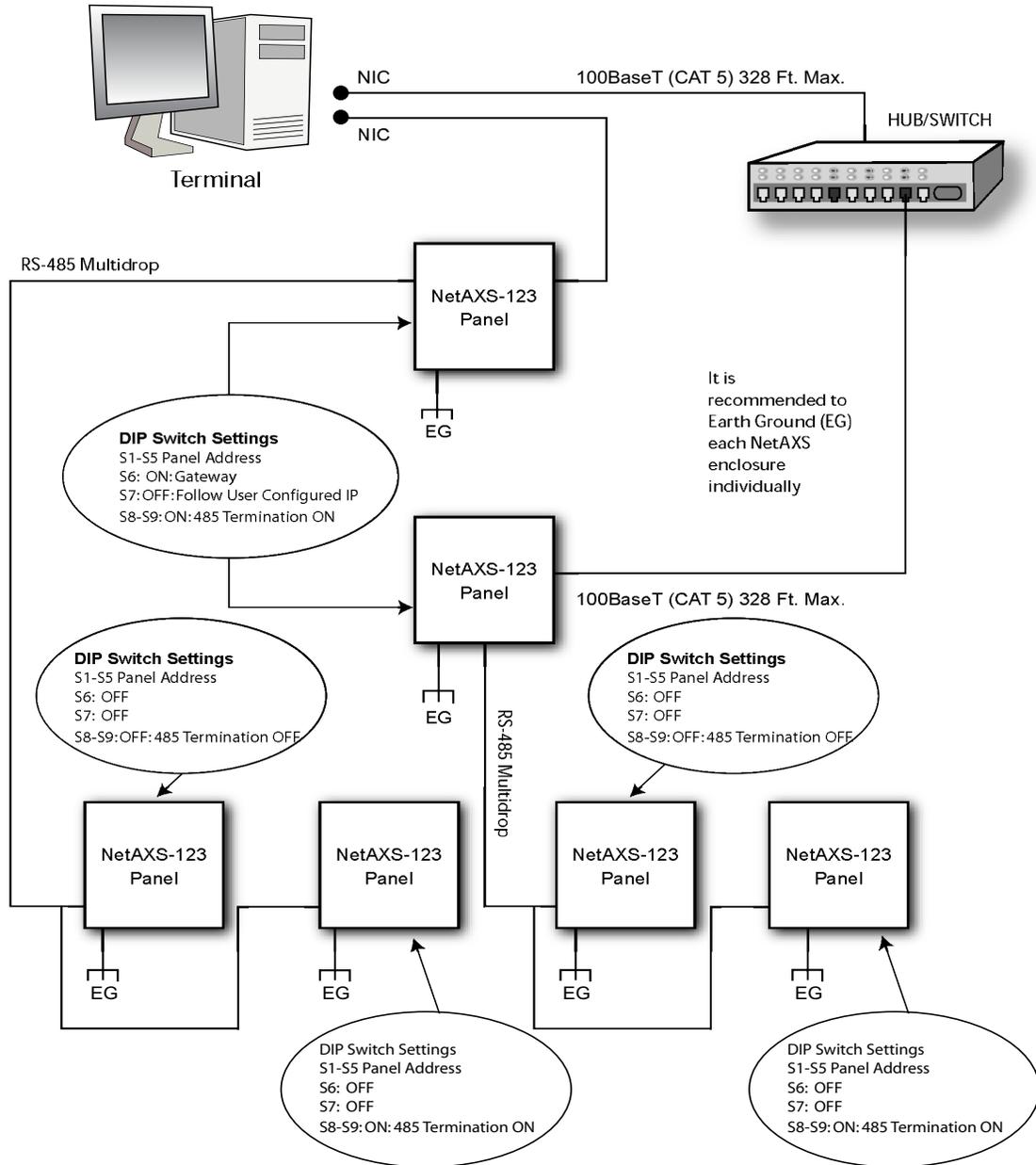


**Note:**  You should ground each NetAXS-123 Standard (Metal) Enclosure panel individually with an Earth Ground.

## 4.2 USB Connection

*Figure 13:    NetAXS-123 USB Connection*

**Note:**  The USB connection is intended to be used for system maintenance and troubleshooting.



**Note:**  You should ground each NetAXS-123 Standard (Metal) Enclosure panel individually with an Earth Ground.

## 4.3  RS-485 Connection via PCI-3

This connection supports thirty-one NetAXS-123 panels for each drop line. Note that PCI-3 units can also be wired in interior, as well as in endpoint, positions. See Figure 16 on page 52 and Figure 17 on page 53.

*Figure 14:    RS-485 Connection via PCI-3*



**Note:**  If you use the PCI-3 connection, you cannot access the web, since the PCI-3 does not support the NetAXS-123 web interface.

## 4.4 RS-485 Connection via NetAXS-123

This connection supports a total of 31 NetAXS-123 panels (including the Gateway) for each drop line.

*Figure 15:    RS-485 Connection via NetAXS-123*
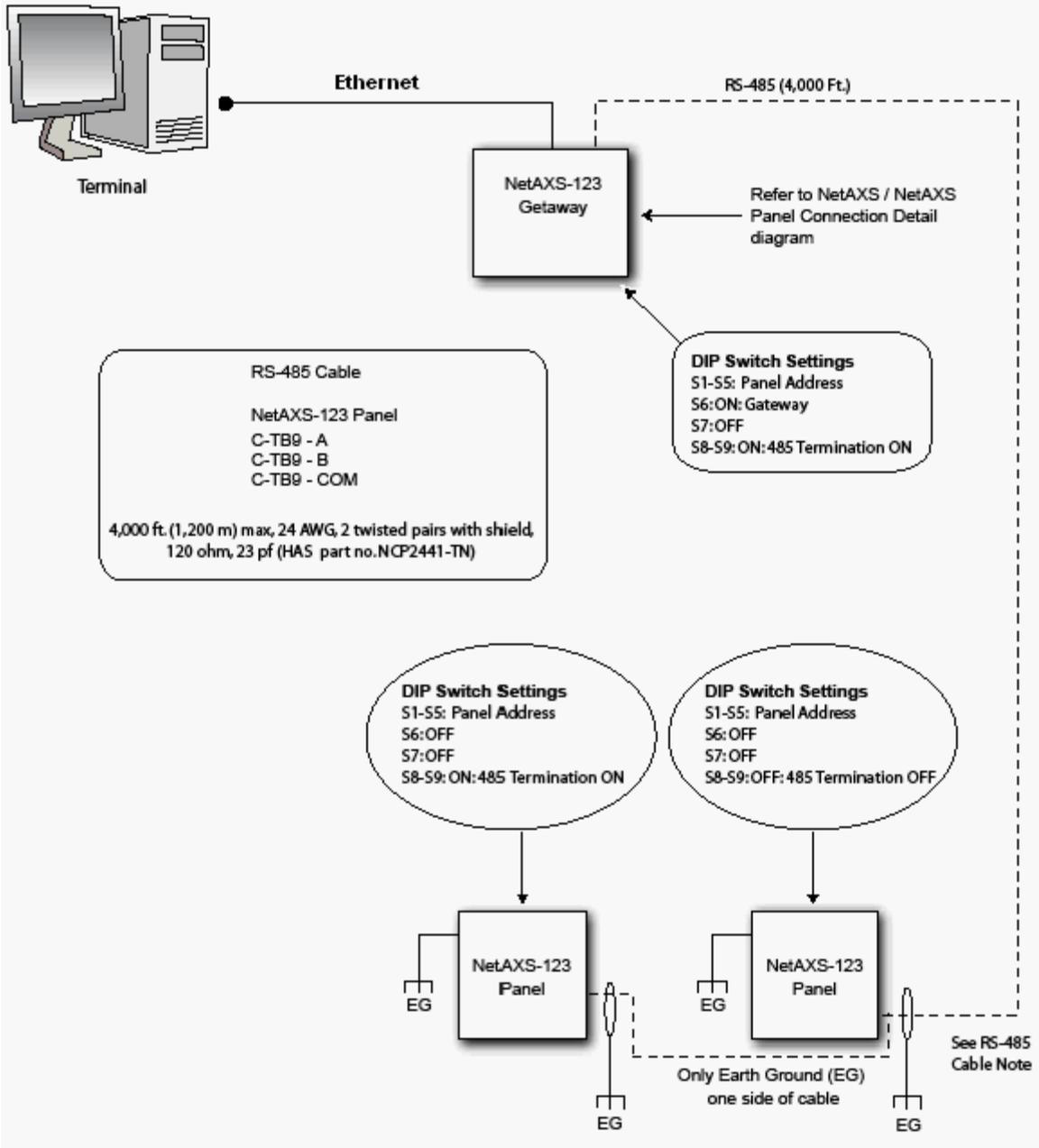


> **Note:**  You should ground each NetAXS-123 Standard (Metal) Enclosure panel individually with an Earth Ground.

## 4.5  RS-485 Connections with Multidrop Panels at Both Ends of the Cable

You can connect Multidrop panels at both ends of an RS-485 cable via either a NetAXS-123 panel or a PCI-3 device.

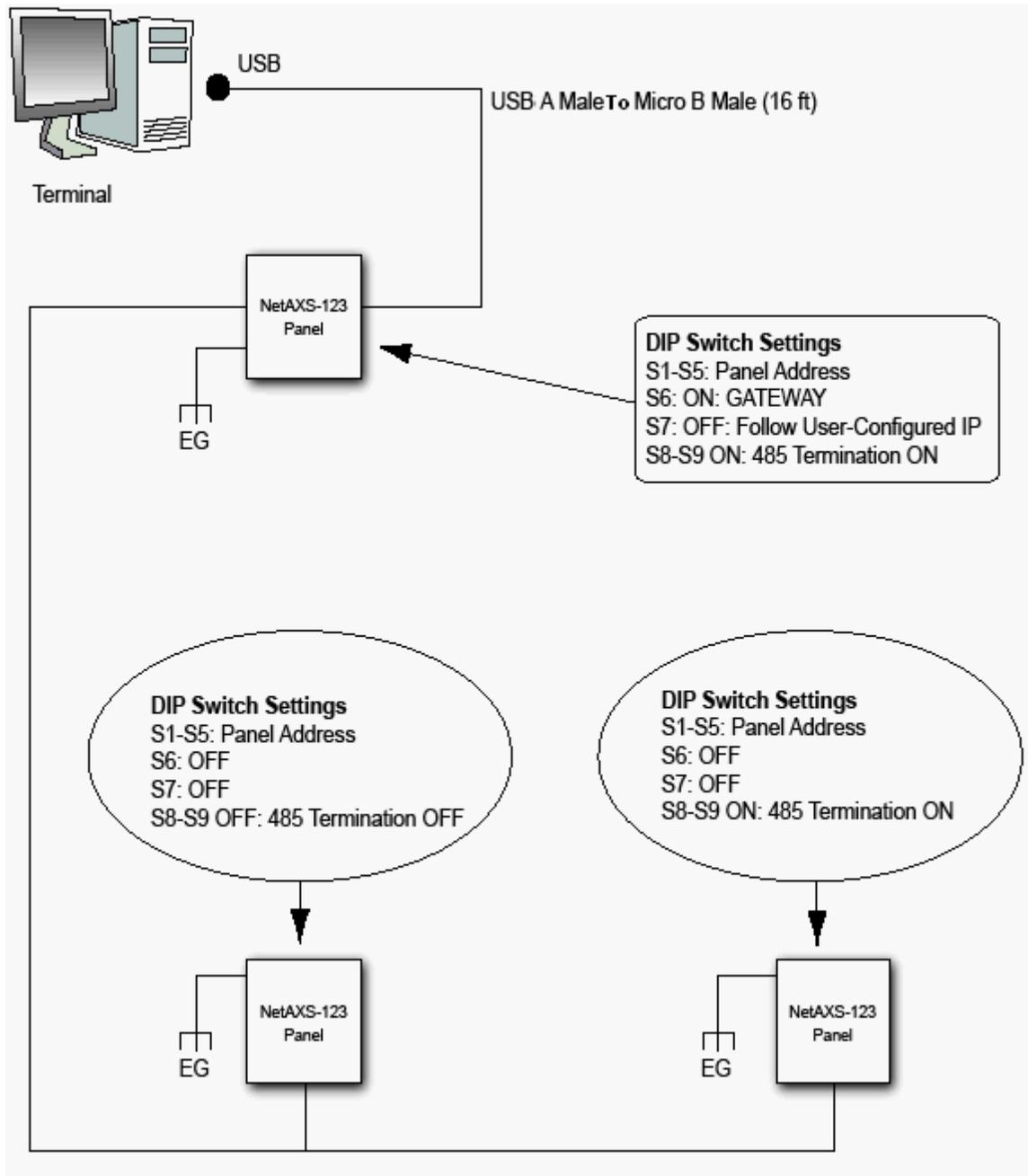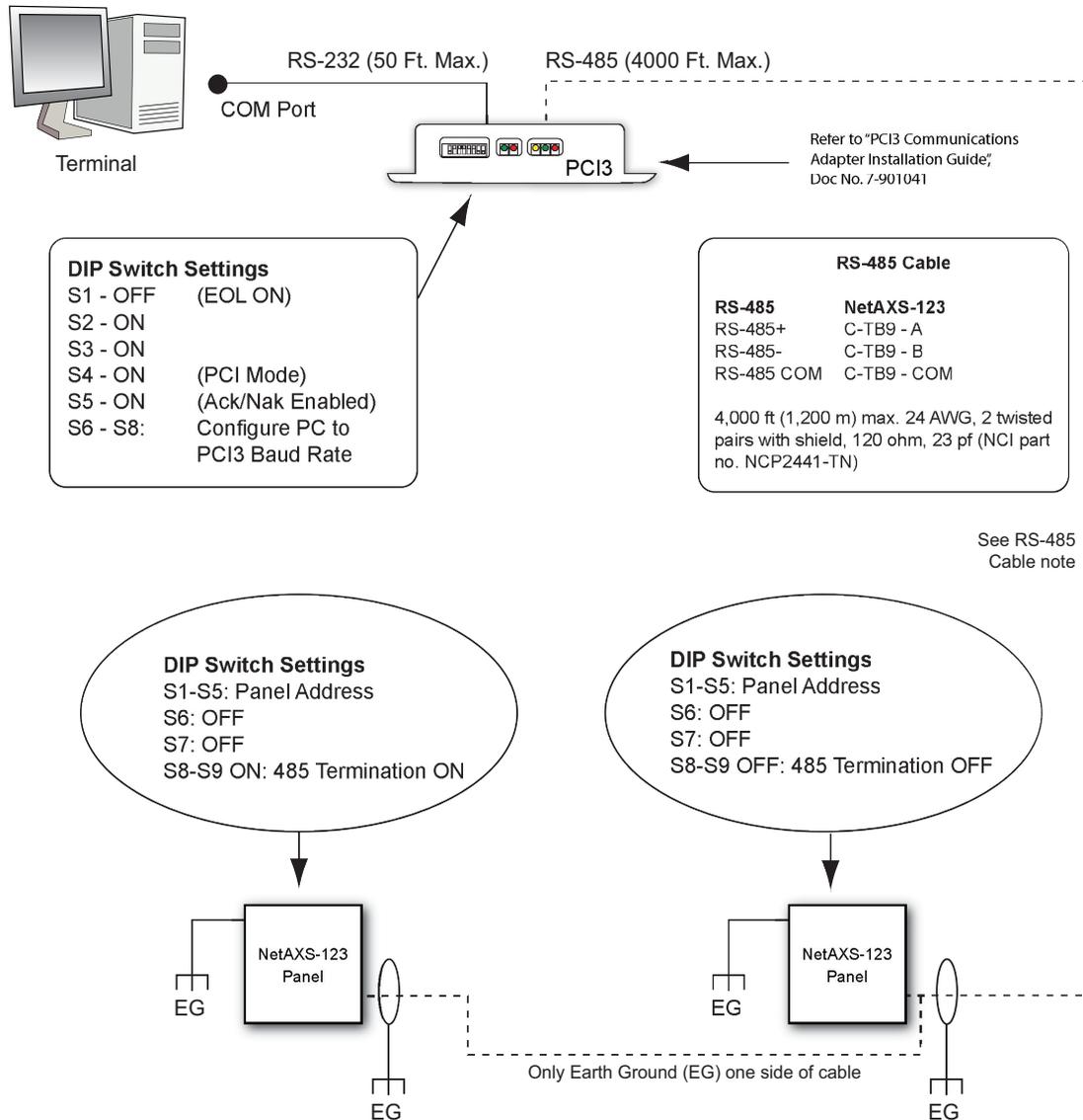*Figure 16:  RS-485 Connection via NetAXS-123 with Multidrop Panels at Both Ends*



**Note:**  You should ground each NetAXS-123 Standard (Metal) Enclosure panel individually with an Earth Ground.

*Figure 17:    RS-485 Connection via PCI-3 with Multidrop Panels at Both Ends*
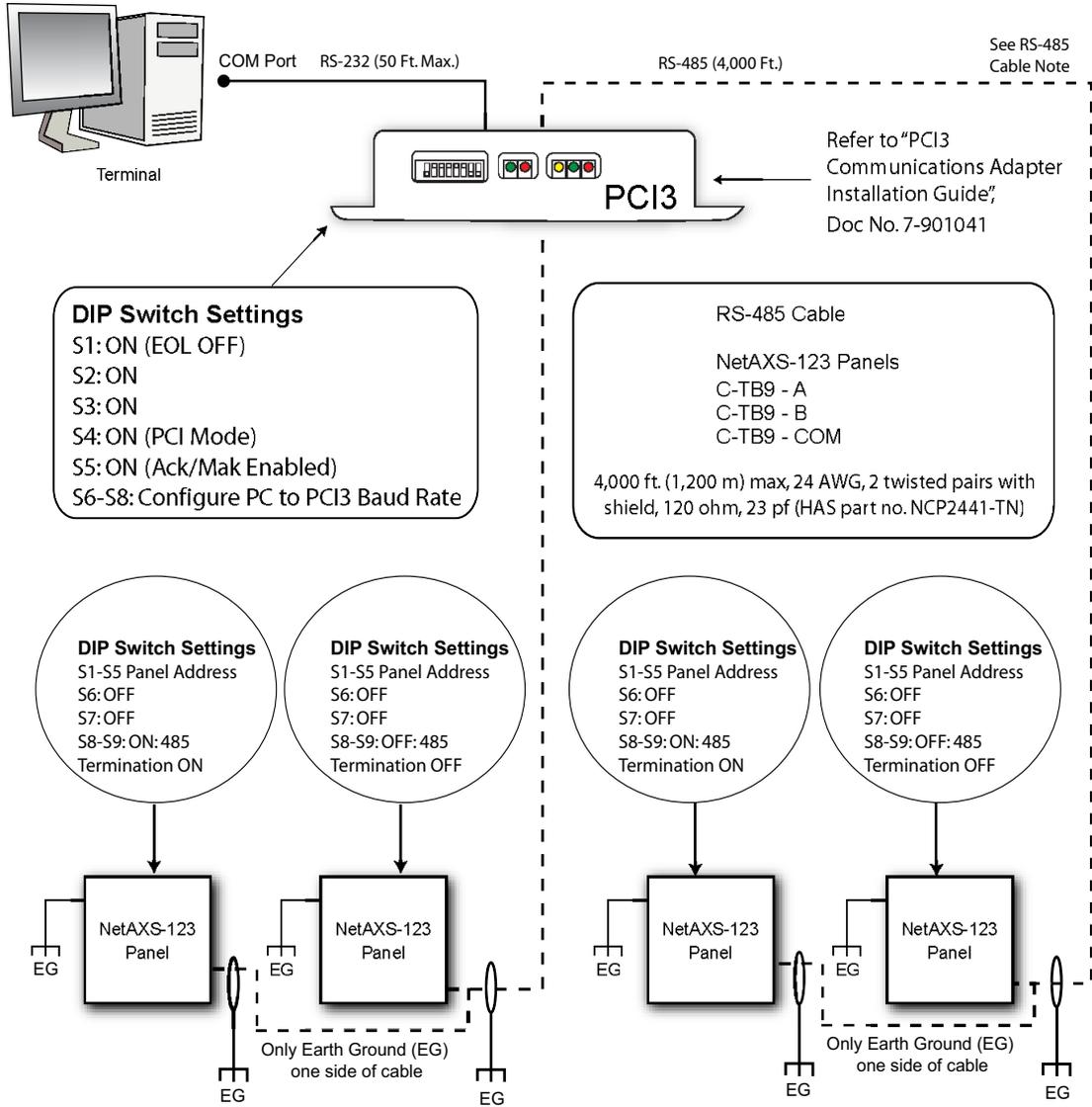


**Note:**  You should ground each NetAXS-123 Standard (Metal) Enclosure panel individually with an Earth Ground.

## 4.6  M-56K Dial-up Modem, RS-485 Connection via Hub (PCI-3)

This configuration supports 31 NetAXS-123 panels for each drop line.

*Figure 18:    M-56K Dial-up Modem, RS-485 Connection via Hub*



**Note:**  You should ground each NetAXS-123 Standard (Metal) Enclosure panel individually with an Earth Ground.

## 4.7  Fiber Converter to RS-485 Connection via PCI-3

This connection supports 31 NetAXS-123 panels for each drop line.

*Figure 19:    Fiber Converter to RS-485 Connection via PCI-3*
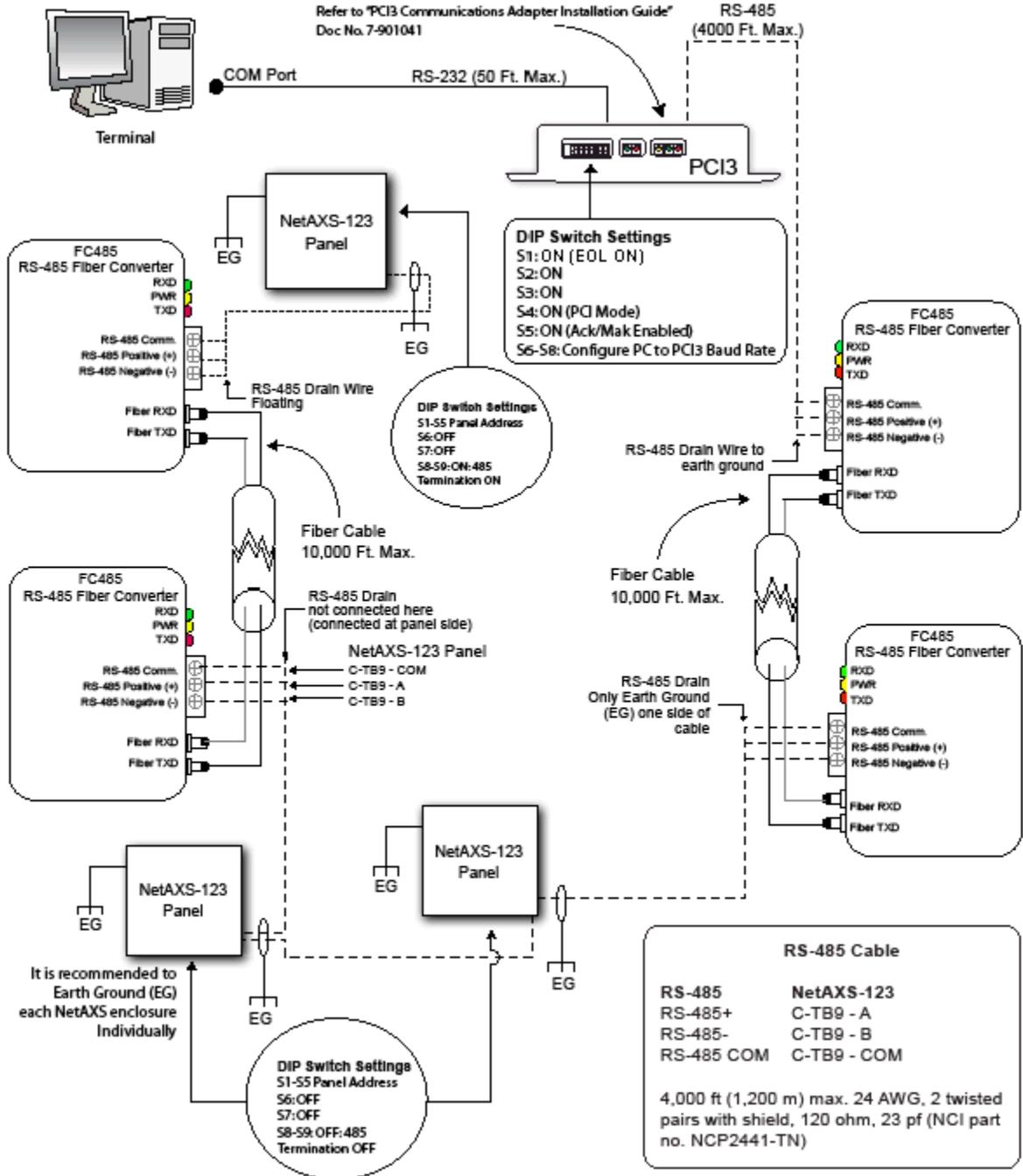
## 4.8  Fiber Converter to RS-485 Connection via NetAXS-123

This connection supports 31 NetAXS-123 panels for each drop line.

*Figure 20:    Fiber Converter to RS-485 Connection via NetAXS-123*
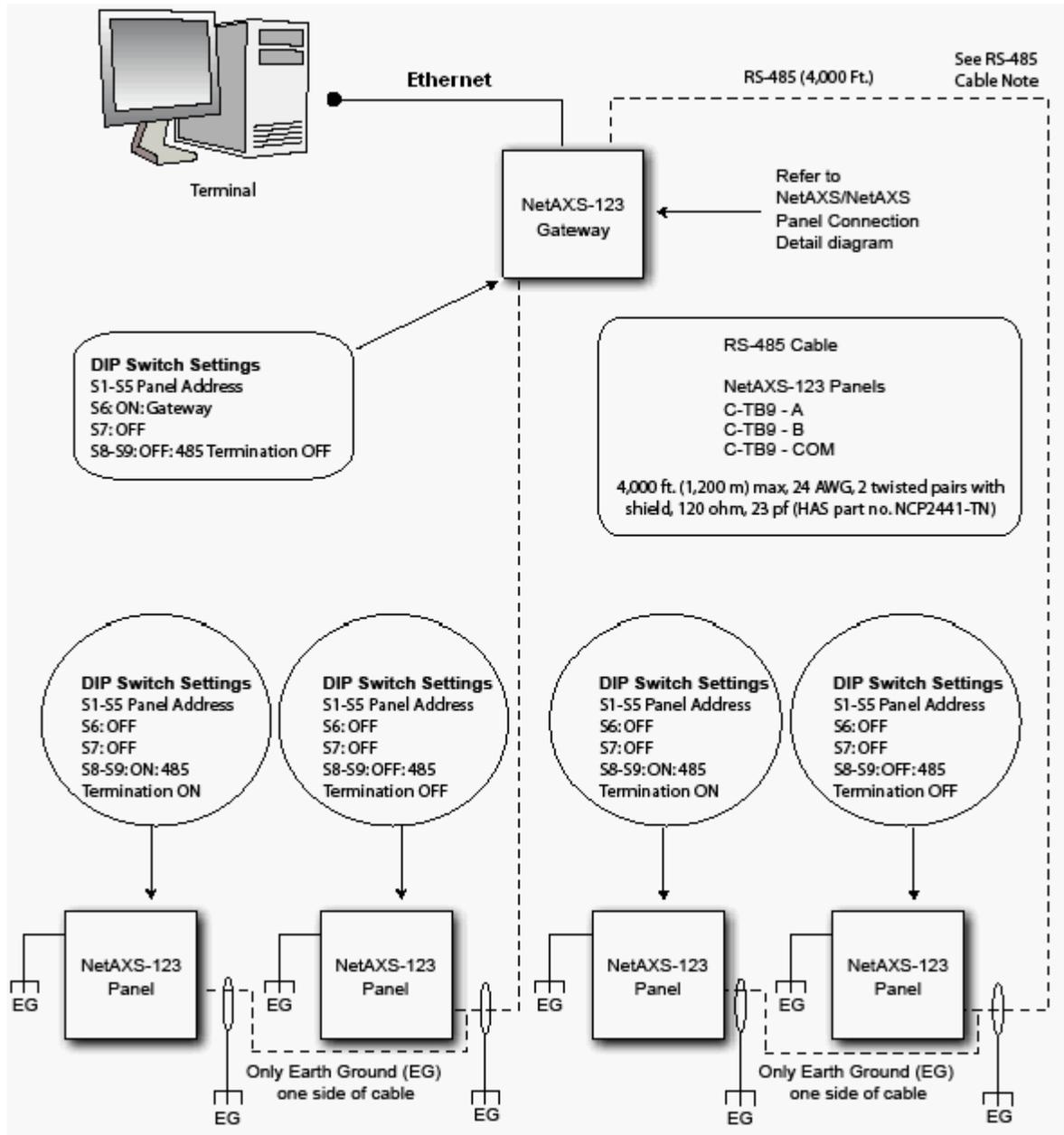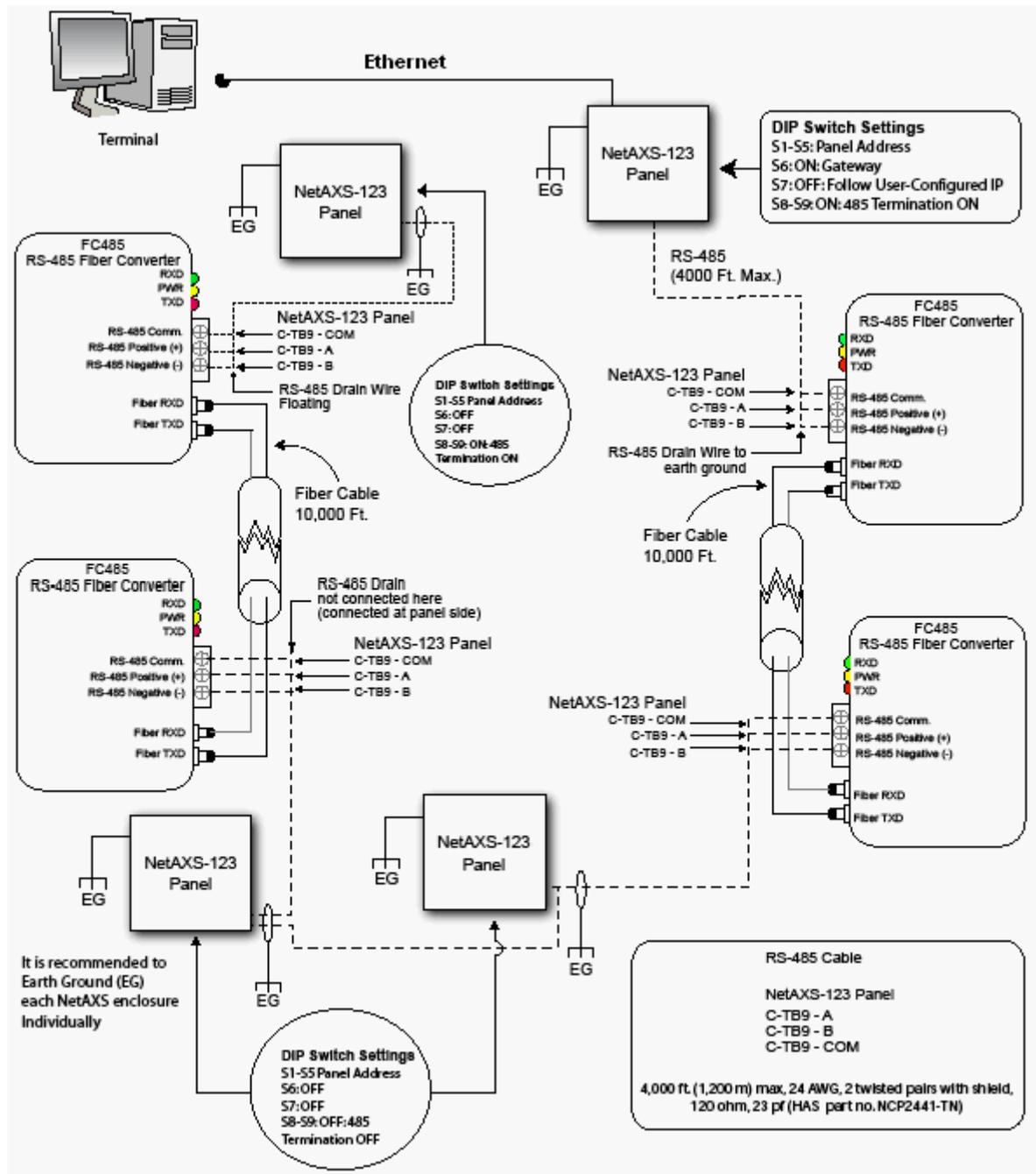


**Note:**  You should ground each NetAXS-123 Standard (Metal) Enclosure panel individually with an Earth Ground.

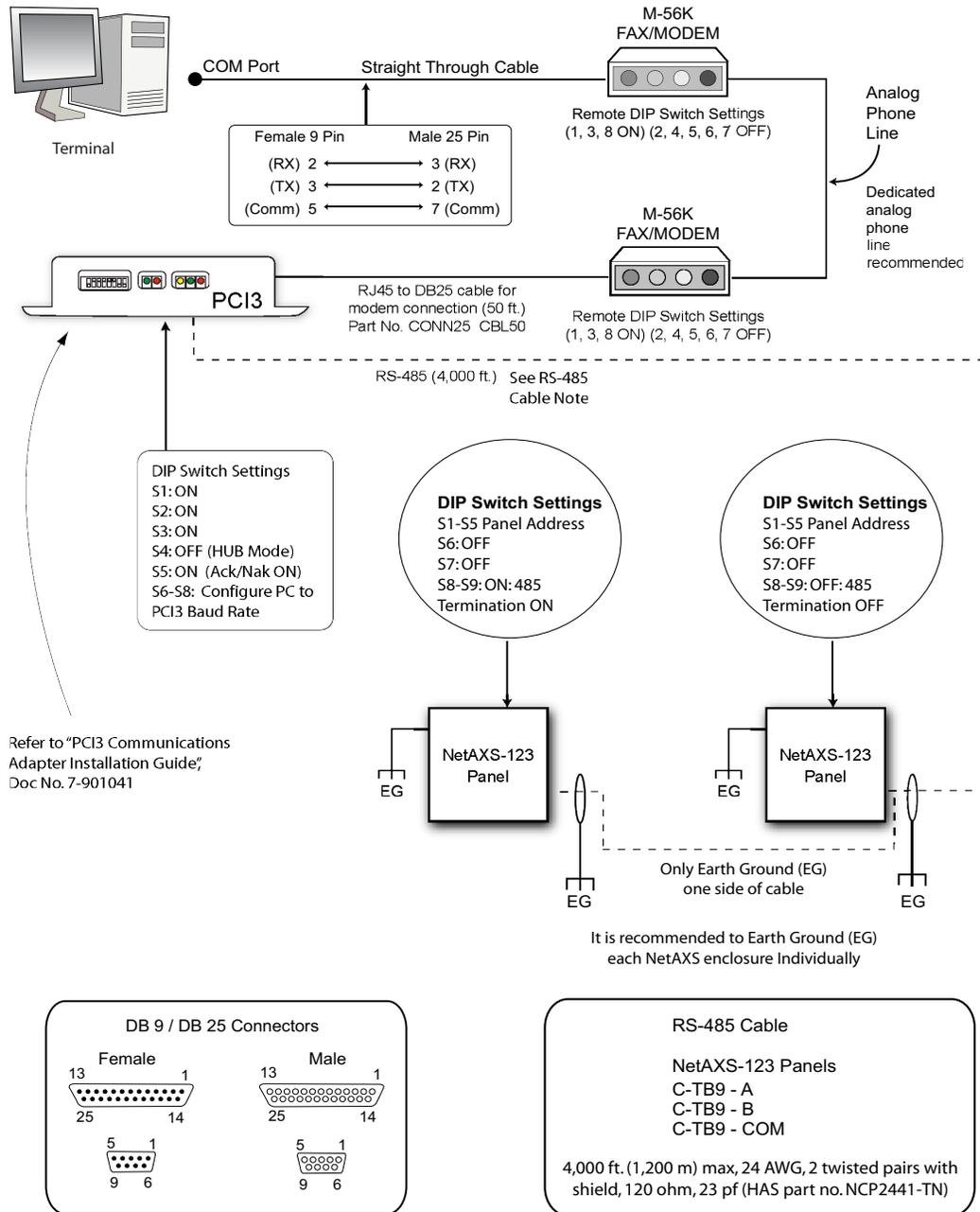## 4.9  N-485-PCI-3/NetAXS-123 Access Controller Panel Connection Detail

*Figure 21:    N-485-PCI-3/NetAXS-123 Access Controller Panel Connection Detail*
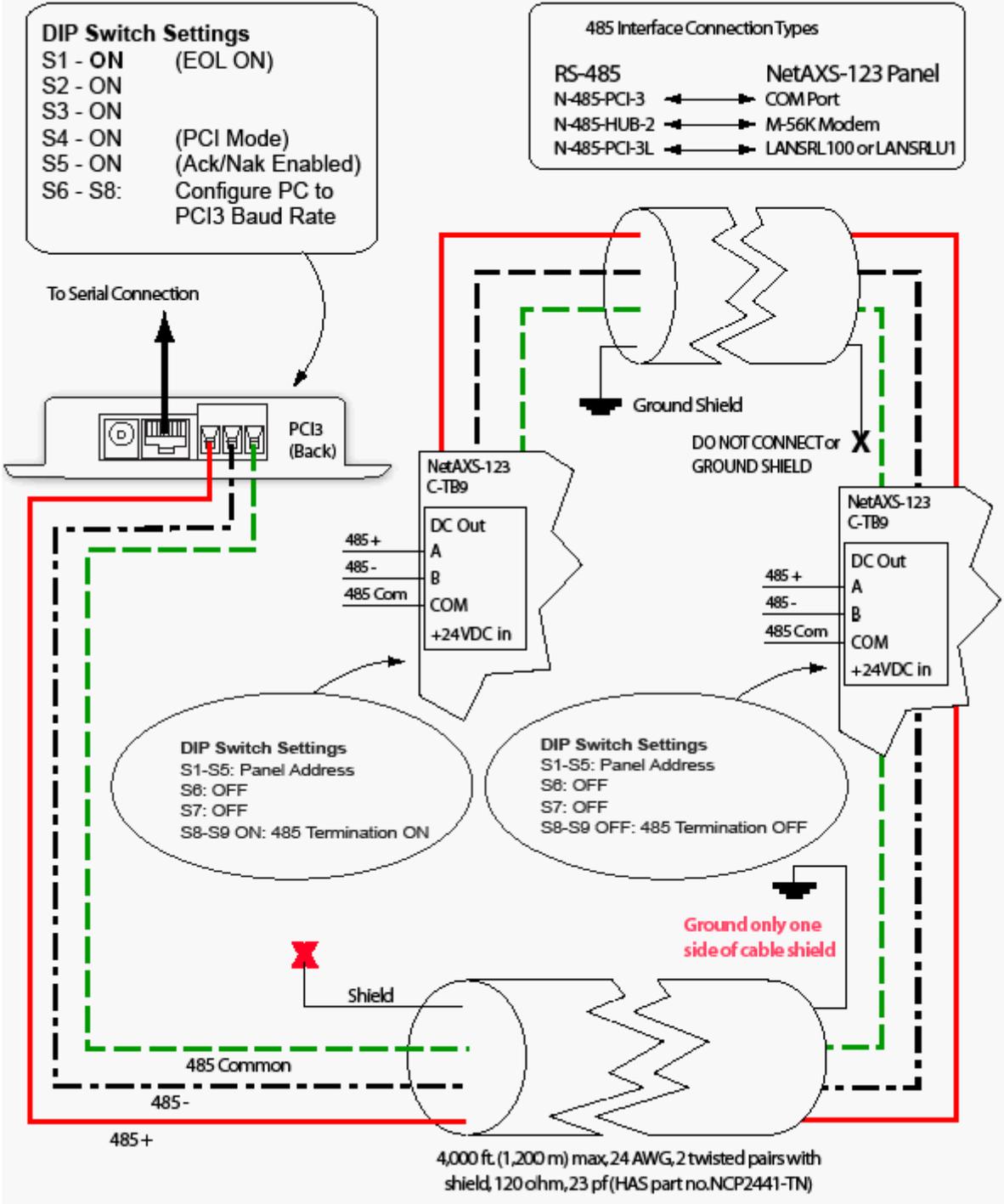
## 4.10 NetAXS-123/NetAXS-123 Access Controller Panel Connection Detail

*Figure 22:   NetAXS-123/NetAXS-123 Access Controller Panel Connection Detail*

**DIP Switch Settings**
S1-S5: Panel Address
S6: ON: GATEWAY
S7: OFF
S8-S9 ON: 485 Termination ON

Ground Shield

DO NOT CONNECT or
GROUND SHIELD

NetAXS-123
C-TB9

DC Out
A
B
COM
+24VDC in

485 +
485 -
485 Com

NetAXS-123
C-TB9

DC Out
A
B
COM
+24VDC in

485 +
485 -
485 Com

NetAXS-123
C-TB9

DC Out
A
B
COM
+24VDC in

485 +
485 -
485 Com

**DIP Switch Settings**
S1-S5: Panel Address
S6: ON: GATEWAY
S7: OFF
S8-S9 ON: 485 Termination ON

**DIP Switch Settings**
S1-S5: Panel Address
S6: OFF
S7: OFF
S8-S9 OFF: 485 Termination OFF

**Ground only one
side of cable shield**

Shield

485 Common

485 -

485 +

4,000 ft. (1,200 m) max, 24 AWG, 2 twisted pairs with
shield, 120 ohm, 23 pf (HAS part no. NCP2441-TN)

## 4.11  Mixed Loops

This mixed-loop configuration supports a combined total of 31 N1000 III, N1000 IV, NetAXS, NetAXS-123, and NS2 panels per Multidrop line.
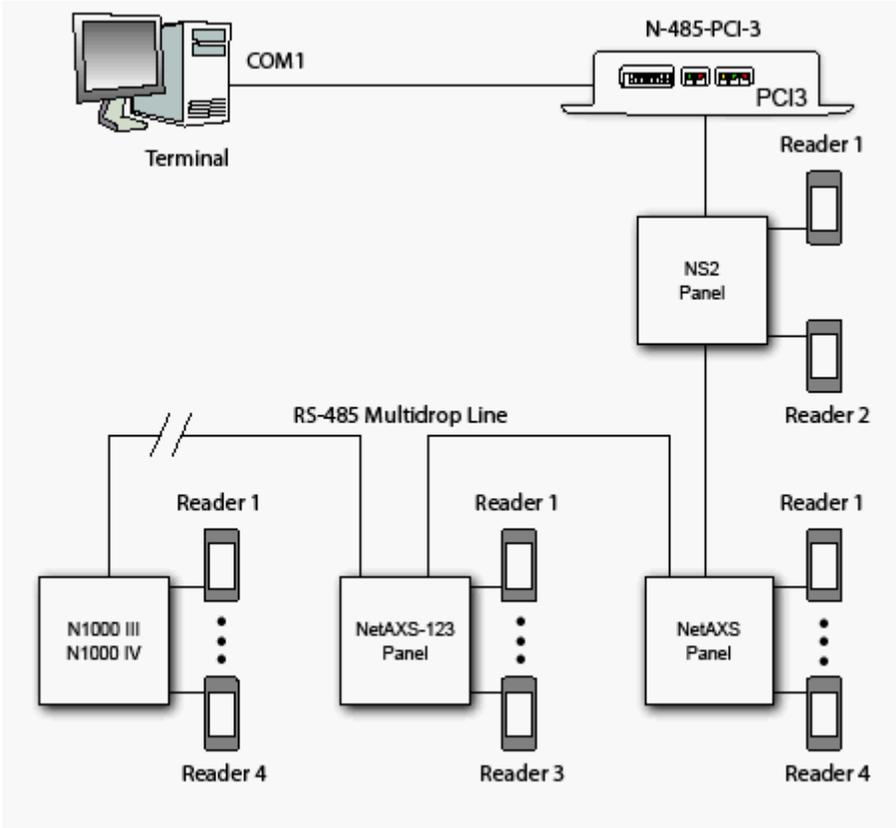
# 5.0 Hardware Specifications

The specifications in this section apply to both the Standard Enclosure and Compact Enclosure panels.

## 5.1 Relay Contacts

Maximum of six Form-C SPDT relays, 3A (at dry contact) or 0.5A (at self-whetted) @ 30VDC (PTC limited in the self-whetted mode). The Form-C SPDT relays are configured as Normally Open or Normally Closed outputs only. Normally Open and Normally Closed contacts cannot be used simultaneously.

## 5.2 Reader Interface

- Reader Power: 12VDC nominal with 500mA maximum for each reader port.
- Reader LED Output: Open collector driver capable of sinking up to 8mA.
- Reader Tamper: Supervised or non-supervised input.
- Reader Data Input: TTL compatible inputs.

## 5.3 Maximum Output Loading

Use the following guidelines unless you are using Power Over Ethernet (PoE):

- Maximum current per reader port for any of the three reader outputs is 500mA.
- Maximum current for any of the six relay outputs on the Songchuan 892N-1CH-1F-V is 3A at dry contact, or 0.5A at self-whetted.
- Maximum battery charge current for the battery wired in series is 250mA.
- External power on C-TB9 is limited to 1.5A @ 12VDC.

## 5.4 PoE Power Limitations

If you are using the NetAXS-123 Standard Enclosure and powering the panel with PoE (Power over Ethernet), you must comply with these specifications for proper operation:

- A NetAXS-123 panel powered by PoE is 802.3af compliant, providing a maximum of 15.4W of input power to the panel. This input power is split between on-board power consumption and external load consumption.  A maximum current capacity of 450 mA @ 12VDC is available for all external devices combined.

**Notes:**

- Two readers per door can still be supported as long as the total current is within the external load capacity stated above.
- You can either find the devices' power consumption amounts by referring to the products' documentation or by using a current meter.

**Example**:

| Device Element | Current |
|---|---|
| Door strike or magnetic lock current | 250 mA |
| Reader A maximum current | 50 mA |
| Reader B maximum current | 50 mA |
| Buzzer or sounder current | 20 mA |
| Door position switch | 20 mA |
| Request to exit switch | 30 mA |
| **Total current for this example** | **420 mA** |

If the total current consumption of your external devices exceeds the 450mA maximum current maximum, then use one of the following system configurations:

- Power the panel with an external 12VDC power supply.

- Power some or all of the external devices with an external power supply to lower the total external current powered by the NetAXS-123 panel below 450mA.

- The maximum power available in the 802.3af standard is 15.4W. This limit is generally at 48VDC, and it is measured at the output of the power injector or PoE switch. Line losses cause a decrease in the power available at the panel when you use longer Ethernet cable lengths. You can minimize these line losses by using either of the following methods:

  - Connecting the NetAXS-123 panel to the power injector or PoE switch with the shortest possible Ethernet cable length.

  - Using a high-power 802.3at power injector or PoE switch with a voltage of 56VDC. This reduces line losses and thus increases available power at the NetAXS-123 panel.

    **Note:** The NetAXS-123 panel will not benefit from the increased power capabilities of a high-power 802.3at power injector. Its use only reduces line losses over the Ethernet cable.

## 5.5 Mechanical

- Standard Enclosure dimensions: Height = 14 inches (355.6 mm), Width = 12 inches (304.8 mm), and Depth = 5 inches (127 mm).
- Compact Enclosure dimensions: Height = 7.5 inches (190.5 mm), Width = 7.5 inches (190.5 mm), and Depth = 2.25 inches (57.15 mm).

## 5.6  Environment

- Temperature: 0C to 49C operating, -55C to +85C storage.
- Humidity: 5% to 85% RHNC.

## 5.7  Cable

Use industry-standard cables that meet the following specifications:

*Table 10:  Reader Wiring*

| Cable Specifications | Description | AWG | Maximum Distance: Feet (Meters) |
|---|---|---|---|
| Readers | 6 Conductor, Shielded | 18 | 500 (153) |
| Alarm Input | Twisted Pair, Shielded | 18 | 2,000 (610) |
| Relay Outputs | Twisted Pair, Shielded | 18 | 2,000 (610) |

# 6.0 Basic Standalone Operation

## 6.1 Card Read / Door Lock Operation

1. Present a card to a reader.

2. The reader sends the card number to a reader input on the panel.

3. The panel searches its database and:

   - If it is a valid card, then energize the door relay associated with the particular reader input. The card is valid when it is in the card database on the panel and the current time and date conforms to the time zone associated with the card.

   - If it is not a valid card, the door relay remains locked.

## 6.2 Door Egress / Door Lock / Door Status Operation

1. Activate the door egress input.

2. The panel energizes the door relay associated with the particular door egress input for a default time of 10 seconds.

3. If the door status goes from close to open to close again during the 10 second door open period, the door relay will be immediately de-energized.

# 7.0 Maintenance

Perform the following maintenance on the NetAXS-123 enclosure:

- Change the backup battery every two to two-and-a-half years.
- Oil the lock once per year.
- Use the following procedure to change the 1A, 250V, Bussan type GMA fuse in the fuse terminal block Power Supply module.

**Warning:** Be sure to disconnect the AC power before replacing the terminal block fuse.

**Warning:** To reduce the risk of fire, replace the fuse only with a 1A, 250V, Bussan type GMA fuse.

1. Disconnect the AC power.
2. Replace the fuse with a new 1A, 250V, Bussan type GMA fuse.
3. Re-connect the AC power.

**Note:** The power supply contains no serviceable parts. There is no replaceable fuse inside the power supply.

- Use the following procedure to change the 1A, 250V, Bussan type GMA fuse in the power inlet terminal block.

**Warning:** Be sure to disconnect the AC power before removing the fuse holder from the power inlet terminal block.

**Warning:** To reduce the risk of fire, replace the fuse only with a 1A, 250V, Bussan type GMA fuse.

1. Disconnect the AC power.
2. Remove the fuse holder from the power inlet terminal block to identify the location of the power inlet terminal block).
3. Replace the blown fuse in the lower section of the fuse holder with the new fuse. The upper section of the fuse holder provides a convenient location for a spare fuse.
4. Slide the fuse holder back into the power inlet terminal block.
5. Re-connect the AC power.

# 8.0  Troubleshooting

*Table 11*  *Troubleshooting Problems and Solutions*

| Problem | Solution |
|---|---|
| The panel powers up, but it does not respond to any communication, cards reads, or input activation. | Ensure that the Address DIP switches are set to a value other than zero. Turn off the power (including battery), change the settings, and re-apply the power. |
| No communications exist with the Ethernet port. | Only a panel set to be a Gateway (DIP switch 6 = ON) will have communications on the Ethernet port. If you need to use that port to access the panel, turn off the power (including the battery), change the switch setting, and reapply the power. Note that if the panel is normally not a Gateway on a Multidrop communication bus, then the Host RS-485 connection (C-TB9) should also be disconnected while DIP switch 6 is ON. After completion of the Ethernet session, turn off the power (including the battery), change the switch setting, re-connect the Host RS-485 terminal block, and re-apply the power. |
| The panel address is unknown. | Option 1:  Set the NetAXS-123 panel's DIP switch 7 to ON. This will default the IP address to 192.168.1.150. <br> Option 2: Connect to the panel through the USB port using the provided USB A to MicroUSB B cable and the USB driver on the product CD. The default USB Ethernet IP address is:  192.168.2.150. |
| The N1000 and NS2 panels on the Multidrop bus do not report. | N1000 and NS2 panels are not supported downstream from a NetAXS-123 panel.  To enable the NetAXS-123 to communicate with the N1000 and NS2 panels, the loop must  be configured with an N-485 PCI-3 as the Gateway. However, in this configuration, web functionality is lost.  It is recommended that the user swap-out N1000 and NS2 panels with NetAXS-123 panels. |

**Note:**  The NetAXS-123 EOL network is AC-coupled. There is no resistance difference between the RS-485 positive and negative terminals if the EOL network is on or off (SW1, switches 8 and 9).

# 9.0  Technical Support

## 9.1  Normal Support Hours

Monday through Friday, 7:00 a.m. to 7:00 p.m. Central Standard Time (CST), except company holidays: (800) 323-4576.

## 9.2  Web

For technical assistance please visit http://www.honeywellaccess.com

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